

Contents

INTRODUCTION.....	3
GROUNDNUT CROP:.....	6
HISTORY OF GROUNDNUT CULTIVATION IN INDIA.....	7
Uses of Groundnut.....	10
OBJECTIVES	11
CONCEPTUAL AND EMPIRICAL METHODOLOGY	13
Empirical Methods.....	15
GROUNDNUT AREA, PRODUCTION AND PRODUCTIVITY TRENDS.....	17
GROUNDNUT PRODUCTION TRENDS IN THE WORLD	17
GROUNDNUT AREA CULTIVATION TRENDS IN INDIA	19
GROUNDNUT PRODUCTION TRENDS IN INDIA.....	21
GROUNDNUT PRODUCTIVITY TRENDS IN INDIA.....	23
Groundnut Situation in Andhra Pradesh.....	Error! Bookmark not defined.
Groundnut Area, Yield and Production trends in Andhra Pradesh.....	26
Production trends of five major groundnut producing districts in Andhra Pradesh....	Error! Bookmark not defined.
Yield: Yield Trends of Major 5 Groundnut producing districts in Andhra Pradesh.....	Error! Bookmark not defined.
CONSUMPTION ANALYSIS.....	29
Groundnut Oil:	29
Groundnut Meal.....	30
Confectionary Groundnut.....	31
GROUNDNUT INTERNATIONAL TRADE	32
GROUNDNUT PROCESSING SYSTEMS	34
Oil processing.....	35

GROUNDNUT PROCESSING CHART	37
GROUNDNUT OIL	38
CAKE.....	38
Price Determining Mechanisms	39
Grading of the produce.....	41
Information about the Markets Surveyed	42
Adoni, Gadwal and Jedcherla Market.....	42
Kurnool Market.....	44
MARKETING CHANNELS FOR GROUNDUT	46
Marketing of Groundnuts in the Early Times.....	46
Marketing Practices during the 90s	47
Present Market Practices	49
Marketing Channels, Marketing Costs and Quality requirements	50
Marketing Channels for Groundnut Kernals.....	50
Marketing Channel for Groundnut Oil.....	56
Marketing Channels for Groundnut Cake:.....	58
Empirical Method to find the final value of derivative products produced from X kg of Groundnut after crushing.....	60
Oil Seed Market Channel and Costs.....	65
Marketing Margins and Net Margins in Groundnut Oil.....	66

1. INTRODUCTION:

India is one of the four major players in the vegetable oil scenario of the world next to USA, China and Brazil, being one of the important oilseed grower, oil producer, importer and exporter. The vegetable oil scenario is very complex and is greatly influenced by the market forces, conflicting interests, vagaries of weather, technology and various biotic and abiotic stresses. Oilseed crops form the second largest agricultural commodity after cereals occupying 14% of the gross cropped area. These oilseeds are being cultivated mostly under rainfed conditions and support the livelihood earnings of small and marginal farmers of the arid and semi-arid ecosystems of the country.

Nine annual oilseed crops are being cultivated in 27.86 million ha in India, with the production of 27.98 million tonnes and the productivity of 1004 kg/ha (2005-06). India accounts for 15.6, 9.2, 6.8, 5.9, 6.1, 9.0 and 9.3% of world's oilseed area, production, oil meal production, oil meal export, vegetable oil export, vegetable oil import and edible oil consumption (2005-06). Our country ranks first in area under groundnut, rapeseed-mustard, sesame, safflower and castor and also in production of sesame and castor. Oilseeds contribute 1.4 and 7% to GDP and agricultural GDP respectively. It is estimated that 14 million farmers are involved in oilseed cultivation, while one million persons are involved in processing of oilseeds and oils. Oilseed products contribute 14.4 and 48.8% to agricultural exports and imports respectively, whereas their contribution towards national export and import is 1.6 and 2.2% respectively (2004-05). About 12-15% of dietary energy to human beings in India is supplied by the oilseeds. Madhya

Pradesh, Rajasthan, Andhra Pradesh, Gujarat, Maharashtra and Karnataka accounted for 88.7% of oilseeds area and 87% of oilseeds production in the country during 2005-06.

There has been more than five times increase in oilseed production during the period 1950- 2005 and 2.5 times increase since 1986, under predominantly rainfed agro-ecological conditions, which is in contrast and higher over the corresponding production increases in total food grains that was achieved with the highest national priorities and also under relatively favourable farming environments. The production performance of oilseeds in the post-TMO period is considerable. Overall, during 1986-2004, the production of oilseeds grew at the rate of 2.84 % per annum with the area growth of 0.84 % (Hegde, 2006). However, this situation has been reversed in the last 10 years (1997-2006), wherein there was decline and/ or stagnation in the productivity causing negative growth rate or stagnation of area and production of oilseeds. The productivity of oilseeds in the country is just 50-60 % of the world average oilseed productivity. This situation warrants an analysis of strengths, weaknesses, opportunities and threat (SWOT) of oilseed sector in the country.

Oilseeds -particularly coconut, sesame, mustard, cottonseed, linseed, castor, niger, safflower have been grown or used in India for many millennia. For example, archaeological excavations of cities of the great Indus Valley culture which spanned the period 2500 to 1500 BC have yielded charred seeds of sesame and mustard. As cloth and string made from *Gossypium arboreum* were found during the excavation, cottonseeds were also known at that time. While the above-mentioned eight oilseeds made their appearance in India at various points of historical time, they can all be regarded as prehistoric. The process of introduction of oilseeds has continued, and four oilseeds, namely, groundnut, soybean, sunflower, and oil palm have gained importance only

during the present century (Achaya 1990).

Groups	OilSeeds
Historical Oilseeds	Coconut, sesame, mustard, cottonseed, linseed, castor, niger , safflower
Newly Introduced Oilseeds	Groundnut, soybean, sunflower, oil palm
Oil bearing materials that are byproducts of cultivated crops	Rice Bran, Tapioca Seed, Maize Germ, Tobacco Seeds, Rubber Seeds, Tung Seeds, Jute Seeds
Oilseeds with characteristics lipid associates	Neem, Karanja, Kusum, Nahor, Undi, Rayana
Oilseeds carrying vegetable hard fats	Mahua, Sal, Dhupa, Kokum, Tamal, Phulwara
Oilseeds carrying soap making Oils	Khakan-pilu, Pisa, Chirandi
Oilseeds with oils of an unusual nature	Maroti, Pinari, Malkanguni
Oilseeds from shrubs	Ratanjyoti, gokhura, hurhur, somraji

2. GROUNDNUT CROP:

Groundnut is the sixth most important oilseed crop in the world. It contains 26-28% protein and is a rich source of dietary fiber, minerals, and vitamins. Groundnut is grown on 26.4 million ha worldwide with a total production of 37.1 million metric ton and an average productivity of 1.4 mt/ha (FAO, 2006).

Over 100 countries worldwide grow groundnut. Developing countries constitute 97% of the global area and 94% of the global production of this crop. The production of groundnut is concentrated in Asia and Africa (56% and 40% of the global area and 68% and 25% of the global production, respectively) (ICRISAT Publication, 2000).

In most of the regions in India the crop is grown in semi-subsistence systems by smallholder farmers with no irrigation and almost no inputs other than land and labor. In contrast, in the USA, Australia, Brazil and China groundnut is produced on a commercial scale using improved varieties and modern crop management practices, irrigation, and purchased inputs. Yields are therefore considerably higher and more stable than in semi subsistence systems.

Groundnut fits into a wide range of farming systems. It can follow both cereals (maize, sorghum, pearl millet and sorghum) and root crops (cassava and sweet potatoes). Groundnut does well on virgin land or immediately following a grass fallow or a well fertilized crop such as maize.

The optimum temperatures for growing groundnuts range from 25°C to 35°C. Cooler temperatures, especially at night, prolong the growing cycle. Although groundnut is drought tolerant, good performance is strongly linked to adequate soil water content at sowing time, followed by well-distributed rainfall. Early maturing small-seeded varieties require 300-500 mm while the medium to late maturing large-seeded varieties need 1000-1200 mm rainfall.

2.1.HISTORY OF GROUNDNUT CULTIVATION IN INDIA:

Groundnuts or peanuts originated in South America. When groundnuts were introduced into India has been a matter of speculation and debate. Leiberherr (1928) states that “as far as India is concerned, it can be assumed as fairly correct that the credit for the introduction of the plant into this country belongs to the Jesuit Fathers who followed Vasco De Gama shortly after his first landing in India.” The flora of Western India includes a large number of specimens of South and Central American origin, introduced by missionaries. The so-called ‘indigenous’ variety in modern India was likely of Brazilian origin. Since South America was discovered in early 1500 A.D., it is probable that the plant was introduced into India at the earliest by the first half of the sixteenth century (John, et.al., 1955). If this is true, such a useful plant could not have been hibernating in that region for nearly two centuries without becoming popular and widespread.

Badami (1936) is of the opinion that groundnut was introduced into India by the Magellan expedition around 1519. This is very unlikely as its introduction even into the Philippines by this agency is discounted. In Buchanan’s travels through Mysore, South Kanara and Malabar written in 1800, the plant is referred to as being cultivated together with turmeric in Mysore (Buchanan, 1807). The largest area under groundnut was reported from South Arcot district of Madras State.

From the description of ‘indigenous’ variety then in cultivation in Bombay, Mysore, and Madras, it is evident that they were one and the same. From an inspection of the herbarium specimens maintained at Kew, Badami (1936) found close resemblance between the indigenous groundnut in Mysore and those from South America, Philippines, China, and Java. It is therefore probable that peanut was introduced into India from one of these sources.

Since the area under groundnut was the largest in South Arcot about the middle of the nineteenth century, it may be assumed that the above introduction should have first occurred on the East Coast of Madras State. Further, the name ‘*Manilakottai*’ (meaning Manila nut) for groundnut prevalent in South Arcot district probably refers to its from Manila in the Philippines (Sheshadri, 1962). Subba Rao (1909), therefore, states that “it is possible that the groundnut found its way, from the New World to India via the Philippines.”

Watt (1892) mentions that according to Dr. Dymott, the groundnut reached India through China. From these literature, it can be assumed that groundnut must have been introduced into India from one of the Pacific Islands or China, where it was introduced either from Central or South America (Sheshadri, 1962). To further cloud the introduction issue, however, based on plant type, it is also hypothesized that groundnuts entered India independently from Africa through the western seaboard.

By 1850, about 1000 hectares were under peanut cultivation in the Madras Presidency of India. This area doubled in the next decade and by the year 1895, about 70,000 hectares were sown with groundnuts mostly in the South Arcot District of Madras. At the same time, a French settlement and port of Pondicherry existed adjacent to this area. In his book, Watt (1889-1893) stated that “the groundnut trade between Pondicherry and France is in full swing, and has been

so since the month of February (1884) .The groundnut trade is the most important in the chief town of the French Settlements in India. It is surprising how the South Arcot District can produce such an immense quantity of nuts.”

A local businessman, Govindaiyer played a significant role in promoting the cultivation of groundnuts in the Madras province by introducing double cropping and establishing oil extraction units. In the Saurashtra region of Gujarat State, Maharaja Bhagvatsinhji pioneered the growing of groundnuts in his own dominion (Achaya 1990).

The triumphant growth of groundnuts until 1895, when 140,000 hectares were under the crop, was abruptly interrupted by the disease outbreak. Production dropped to half in 1897, and to a third the next year (Watt 1908). A new variety of groundnut was then introduced from Mozambique, and by 1902, the area under peanut cultivation has reached to the level as of 1895.

This variety, subsequently named Coromandel, has since dominated the production of groundnuts all over India. In 1901-02, the Bombay Department of Agriculture brought in Coromandel from Pondicherry, Spanish and Virginia varieties from America, and Small and Bold Japan from Japan, which rapidly established themselves (Achaya 1990). Between 1910 and 1945, the crop spread from Madras to Gujarat, and gradually to a wide swathe of states all the way down to the south-west of India.

2.2. USES OF GROUNDNUT

Almost every part of groundnut is of commercial value.

Groundnut Oil: The groundnut oil has several uses but it is mainly used as cooking oil. It is used in many preparations, like soap making, fuel, cosmetics, shaving cream, leather dressings, furniture cream, lubricants, etc. Groundnut oil is also used in making *vanaspati ghee* and in fatty acids manufacturing. It is also used as a medium of preservation for preparation of pickles, *chutney*, etc.

The groundnut oil is used in making different types of medicated ointments, plasters, syrups and medicated emulsion. It is also used to make various food preparations like butter, milk, candy and chocolate, *chutney*, groundnut pack, *laddu*, *barfi (chukii)*, etc.

Kernels: Whole kernels are used for table purpose by frying, soaking, roasting and boiling and in different types of *namkeens*. Roasted groundnut is the most popular way of eating. Kernels are also used as a spice in vegetables and as sprouts for *salad*.

Groundnut Cake: It is a good feed for animals and poultry due to its nutritive value and palatability.

Groundnut shell. Groundnut shell has great potential for commercial use. It is used as a fuel, filler in cattle feed, hard particleboard, cork substitute, activated carbon, etc.

3. OBJECTIVES:

Despite its high potential for improving the incomes of the rural poor, the crop has not been fully exploited. Several factors have contributed to this. Insufficient seed production and marketing systems that limit availability of quality seeds of improved varieties to smallholder farmers is a major limiting factor for adopting new varieties.

Most of the available high yielding varieties with market preferred traits have not reached the farmers on a large scale and hence the productivity of the crop has more or less remained same. This has resulted in limited quality and volume improvements making it less tradable.

There is a lack of empirical data and information needed to facilitate formulation of strategies to strengthen groundnut value and to increase its competitiveness and small farm holder's participation.

A systematic analysis of the value chains is therefore needed to understand the various factors inhibiting the growth of value in groundnut crop.

This paper employs a value chain approach and provides a critical overview of the groundnut subsector in Andhra Pradesh. It examines the demand side factors that affect the groundnut production, value addition, marketing and trade and utilization in Andhra Pradesh. The paper transcends the usual subsector analysis to identify the existing groundnut value chains and assess

the postharvest aspects affecting the flow of groundnut along the various value chains. It is based on an empirical study that analyzed the marketing aspects and opportunities facing the groundnut industry.

The specific objectives of the study are:

- Understand the Structure, conduct and performance of Groundnut Markets in Andhra Pradesh
- Map the Value Chains and identify the factors that affect local and global competitiveness of the crop
- Identify priority interventions that strengthen value chains and facilitate commercialization to harness the full potential of the groundnut subsector

4. CONCEPTUAL AND EMPIRICAL METHODOLOGY:

The Value Chain or Value chain analysis is a chain of activities and, at each activity the product gains some value. The concept has now been extended to whole supply chains and distribution networks in the form of integrated value chain, which is a dynamic integration of enterprises and their suppliers and customers to determine, create, fulfil and communicate value in the global environment. This approach analyses the flow of resources, materials and information within the chain of activities from initial point to final consumption. It pays particular attention to linkages between different intermediaries and the needs of the final users. The technique makes it possible to breakdown the costs involved in the value chain process for specific product. To provide reference, point for analysis, some of these costs are selectively benchmarked against costs incurred in the value chain of a number of similar export products of comparator countries, which allows cross country comparisons and benchmarking against the key competitors. The findings of the analysis make it possible to decide which impediments do the greatest harm to cost competitiveness and what remedial policy actions, institutional changes and other corrective measures deserve priority (Bayson et al, 2006).

Value chains in agribusiness are going through a change globally. Tightly aligned supply or value chains that extend from genetics through producers, processors and end users increasingly characterize the agriculture sector. The value chain perspective highlights the issues of codification of knowledge in the value chains, supplier perspective, strategies to reduce the

governance costs, power asymmetric and concentration (Humphrey, 2006).

The value chain development highlights the importance of coordination, cooperation and communication in establishing value added vertical business alliances particularly in emerging industries. The case study of Royal Elk Products provides an illustration of the value chain development by building relationships with an array of suppliers and distributors within a dynamic and rapidly evolving industry (Hobbes et al, 2002). The systematic value chain analysis acts as vehicle for intra firm and inter firm waste elimination actions (Francis, 2004).

The Value chain affords each segment an interest in the key stages of the chain as well as an equal share of the financial risks and rewards (Katz and Boland, 2000).

In general, an in-depth value chain analysis considers the following:

- What are the economic costs along the value chain?
- Where is the most value added to the value chain?
- Who are the most important actors within the value chain?
- What is the institutional framework of the value chain?
- Where are the bottlenecks in the value chain?

However, In this study we adopt a broader concept of a value chain to assess the structure and functioning of all the actors along the chain till final product and try identifying the key constraints and weak linkages that determine the overall competitiveness of the groundnut subsector. We deal with marketing conditions where linkages among the players are underdeveloped, and asymmetric information and mistrust are pervasive.

Therefore, the strict definition of value chains is not adopted and we use the term market chains interchangeably with value chains.

4.1. EMPIRICAL METHODS:

The study entailed a detailed review of literature together with collation and analysis of secondary data. The secondary data comprised of FAO aggregate data on national output, data on export volumes of Groundnut from India obtained from various published documents and district level production data from major groundnut producing regions in AP.

Information from these secondary sources was augmented with collection and analysis of post farm level marketing data. The post farm level data included information from market survey conducted on 111 value chain actors in Andhra Pradesh in 2009. These value chain actors included farmers, commission agents, brokers, traders, oil millers, solvent extraction unit owners, oil wholesalers and retailers. These value chain actors were from 6 large groundnut markets in AP: Mehbubnagar District: Gadwal, Jedcherla, Kurnool District: Kurnool, Adoni and Anantpur District. Details of these markets along with groundnut arrivals and prices are given chapter 4. Due to difficulties associated with ascertaining the total population of each category of market intermediaries, only representative and convenient respondents were purposively selected for the interviews.

Marketing Costs were taken to include both transaction costs and standard marketing costs (eg transport, assembly, grading/sorting). Measures transaction costs included the reported costs of finding a buyer/seller, costs of monitoring/inspecting the quality of grain being traded, and the

costs of negotiating prices. The standard marketing costs considered in the study included the costs of assembling the produce, grading/sorting, labour, transportation and storage among others.

The estimation of participants net marketing margins was therefore stated as marketing margin less total cost, i.e:

$$\text{Net Marketing Margin} = \text{Marketing Margins} - \text{Total Costs} \quad (1)$$

$$\text{Marketing Margin} = \text{Selling Price} - \text{Buying Price} \quad (2)$$

$$\text{Total Cost} = \text{Standard Marketing Costs} + \text{Transaction Costs} \quad (3)$$

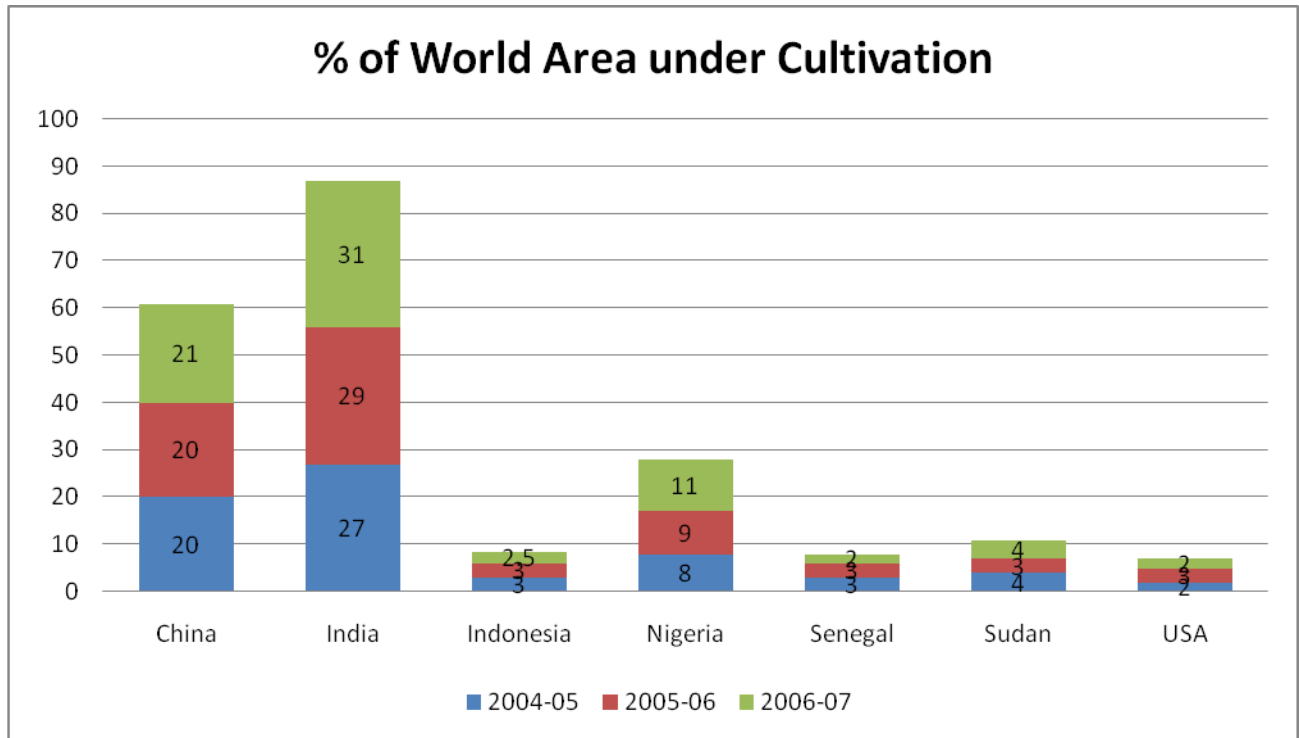
The standard marketing costs included transport costs incurred during buying and selling activities, i.e transport from seller to store and from store to buyer. In addition, marketing costs included costs paid for labor to clean the grain, storage costs, loading and offloading costs, decortification costs, grading costs, processing costs, packaging costs, market fee, custom fee and other implicit costs.

5. GROUNDNUT AREA, PRODUCTION AND PRODUCTIVITY TRENDS

5.1. GROUNDNUT PRODUCTION TRENDS IN THE WORLD

Groundnut is cultivated in more than 60 countries in the world. During 2007, Groundnut occupied an area of 26462.86 thousand hectares with the production of 35,658.43 thousand tonnes in the World. Groundnut is mainly produced in Asian countries. China is the largest producer of Groundnut accounting for 37.71 percent of total world production followed by India (21.03 percent) during the year 2007. China and India, together, accounted for about 58.74 percent of world Groundnut production. Nigeria (7.57 percent), United States of America (5.27 percent), Indonesia (3.86 percent), and Sudan (3.37 percent) were the other major Groundnut producing countries during the same years. In case of Area, India ranked first one with 30.23 percent in the World, during 2003, followed by China (19.37 percent), Nigeria (10.58 percent), and Sudan (7.18 percent). However, in productivity, United States of America stood first with 3540 kg/ha followed by China (2624 kg/ha), Argentina (2018 kg/ha) and Indonesia (2016 kg/ha) during 2007.

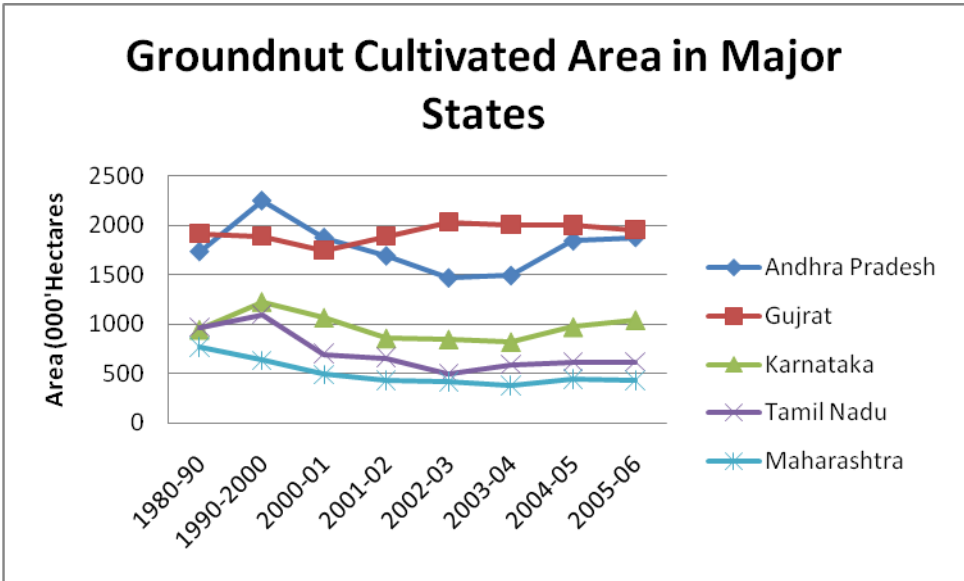
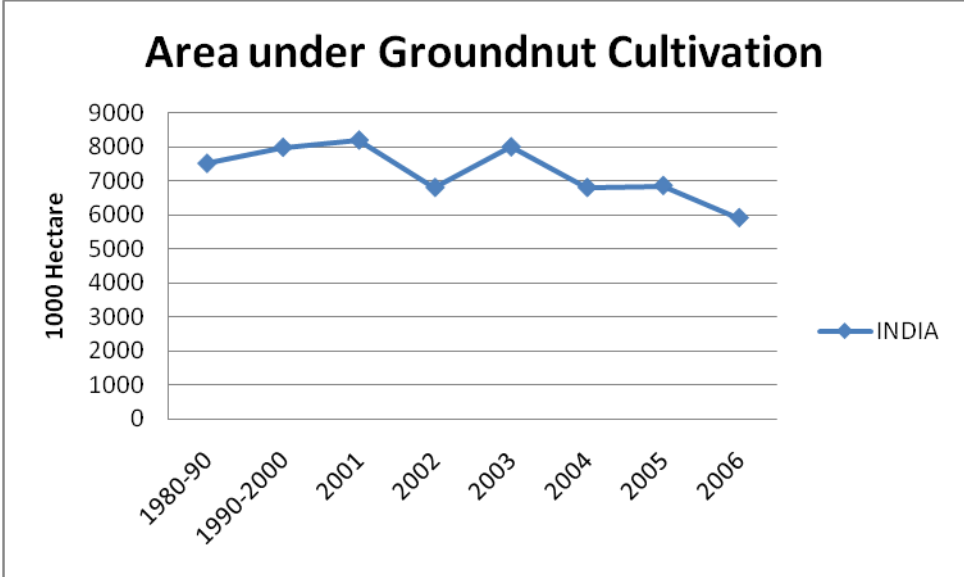
	2004-05			2005-06			2006-07		
	aerA	noitcudorP	Yield	aerA	noitcudorP	Yield	aerA	noitcudorP	Yield
AI/DNI	6,238.10	7,027.50	1,127	5,953.50	4,363	733	8,000	7,500	938
an/hC	5,016.42	14,471.84	2,885	4,946.10	14,895.10	3,012	5,125.40	13,447.46	2,624
AI/SENODNI	654.8	1,245	1,901	646.95	1,267	1,958	682.94	1,377	2,016
AI/REGIN	2738	2,683	980	2,782	2,699	970	2,800	2,700	964
AN/ITNEGRA	251.06	564	2247	222.37	517	2325	156.4	315.6	2018
NA/DUS	1,531.32	990	647	1,900	1267	667	1,900	1,200	632



5.2. GROUNDNUT AREA CULTIVATION TRENDS IN INDIA

India is a World leader in groundnut farming, with 6 million hectare of cultivated area in the year 2003 (FAO, 2004). Area under groundnut cultivation has decreased from 7.2 million ha in 1980-81 to 6 million ha in the year 2005-06. Groundnut is grown mostly in five states namely Andhra Pradesh, Gujarat, Tamil Nadu, Karnataka, and Maharashtra, and together they account for about 90 per cent of the crop's total area. Two of these states (Andhra Pradesh and Gujarat) account for more than half of the cultivated area. Andhra Pradesh and Gujarat States share about 28 and 24 per cent of the total groundnut area respectively in the country. Tamil Nadu and Karnataka share about 15 per cent each of the total cultivated area. About 8 per cent of the total groundnut area is in the State of Maharashtra.

Over the years, area under cultivation of groundnuts in Andhra Pradesh has increased from 1.3 million ha in the year 1980-81 to 1.8 million ha by the year 2005-06. Among the major groundnut growing states (Andhra Pradesh and Gujarat), there has been increase in area under Groundnut cultivation in Andhra Pradesh. However, in the State of Gujarat, cultivated area has almost remained the same. Similarly, groundnut area has decreased in the State of Maharashtra. On the other hand, cultivated area of groundnut has decreased in the southern States of Tamil Nadu. Which is a common trends in India for groundnut cultivated area before (mid-sixties) and after the green revolution in India. The study revealed that there was a decline in the cultivation of groundnut from the beginning of the green revolution in the northern states mainly because of the increased emphasis on cereal production, wheat, and rice (IEMR, 1993).



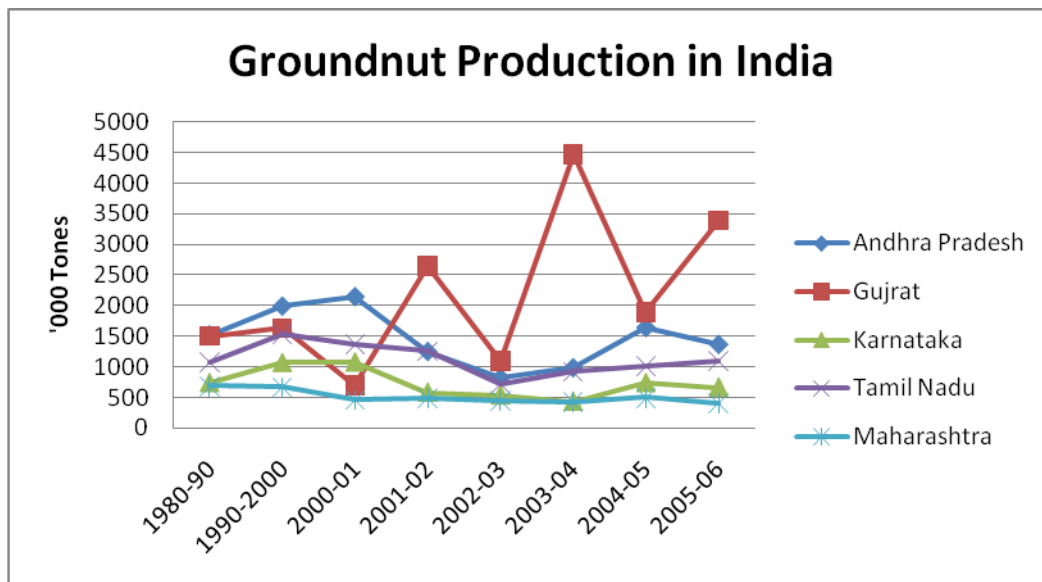
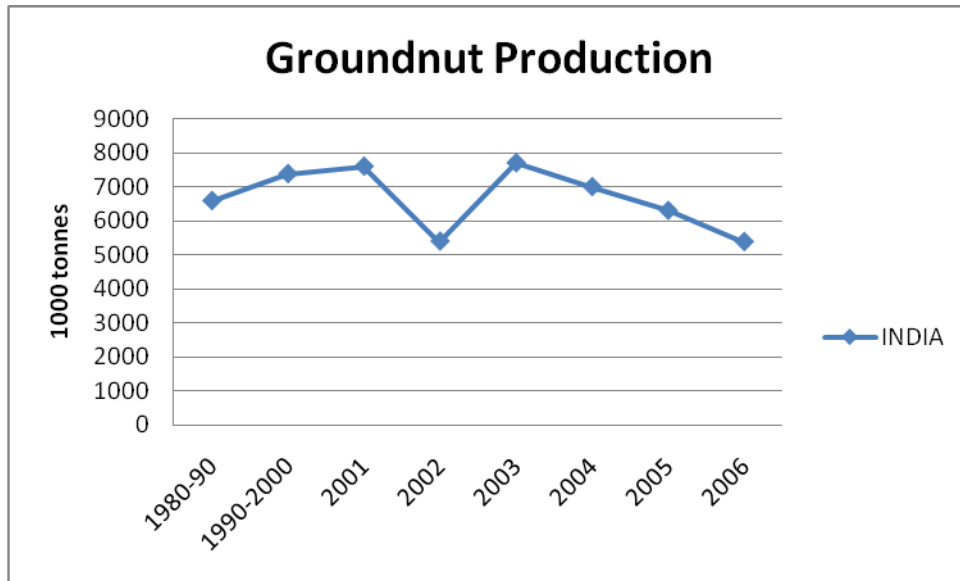
5.3. GROUNDNUT PRODUCTION TRENDS IN INDIA:

Groundnut is the single largest source of edible oils in India and constitutes roughly about 35 per cent of the total oilseed production. India grows about 6 million tons of groundnuts (in shell) currently. From 6.2 million tons in the year 1980-81, the production has decreased to about 5 million tons by the year 2006-07. From the year 1981-82, the production has been fluctuating between 5 and 7 million tons indicating the fluidity of production trend in groundnuts. With respect to the quantity of groundnut production in India, it has been a mixed bag of good and bad years.

Paralleling area under production, about ninety per cent of the production comes from the five major States in India. These states are Andhra Pradesh, Gujarat, Karnataka, Tamil Nadu, and Maharashtra. Andhra Pradesh and Gujarat alone contribute about fifty per cent of the total production in India. The individual share of production of Andhra Pradesh and Gujarat are 23 and 27 per cent respectively.

The production of groundnuts in the State of Andhra Pradesh has been more or less consistent over the years unlike in Gujarat. In fact, Gujarat being one of the major groundnuts producing states, volatility of production has been a major threat to the groundnut industry in the country. On the other hand, two southern States, Tamil Nadu and Karnataka have steadily picked up in the rate of production over the years. From about a million ton of production in the year 1981-82 in Tamil Nadu, it has reached about 1.8 million. Karnataka State has also gained about 2/3rd of a million tons in the same period. With consistently increasing production of groundnuts, these two states contribute to the stability of groundnut production in the country. The State of Maharashtra has been poor performer all the way from the year 1980-81 without a significant

increase from about 1.2 million tons of production.



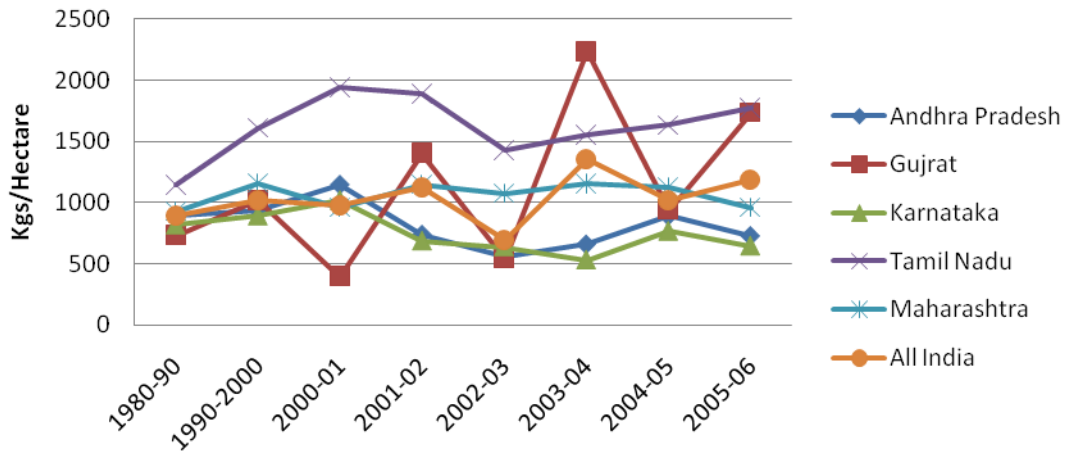
5.4. GROUNDNUT PRODUCTIVITY TRENDS IN INDIA:

During 1980s, the average groundnut productivity in the World increased by 16.1 per cent over 1970s. Most gains in productivity were made by China and Myanmar. India, Indonesia, Senegal and USA also gained in productivity whereas many countries in Africa showed a decline. In India the recent gains have been in the order of 1.3 to 3.2 per cent year under rainfed cultivation. In India, on farm-demonstrations carried out, jointly by the Indian Council of Agricultural Research (ICAR) and ICRISAT, comparing local cultivars and local practices with improved cultivars and improved production technology, have contributed for increasing the productivity level of groundnuts (Nigam, et.al., 1994).

The current productivity of groundnuts in India is about a quintal per ha. About fifteen years ago, the productivity level was about 736 kg/ha. In comparison to other countries, the productivity level in India is deplorably low mainly because about 80 per cent of the crop is grown under rainfed conditions (with average productivity of 800 kg/ha), where drought takes a heavy toll apart from the yield loss due to a plethora of pests and diseases.

In contrast, winter/summer groundnut grown under irrigated/assured residual soil moisture gives almost double yield (1567 kg/ha). Among different States producing groundnuts, Tamil Nadu tops the list with about 1.5 quintals per ha, which is half a quintal more than the all-India average. Also the productivity of groundnuts has been consistent over the years in Tamil Nadu.

Groundnut Productivity in India



5.5.GROUNDNUT SITUATION IN ANDHRA PRADESH:

Andhra Pradesh is one of the leading producer of groundnuts in India. It ranks second in areas and third in the production. Most of the lag in the production is due to the fact that area under groundnut cultivation in AP is not irrigated and is predominantly grown in the semi-arid areas. Hence groundnut cultivation in AP gains significance in understanding of the trends and value chains.

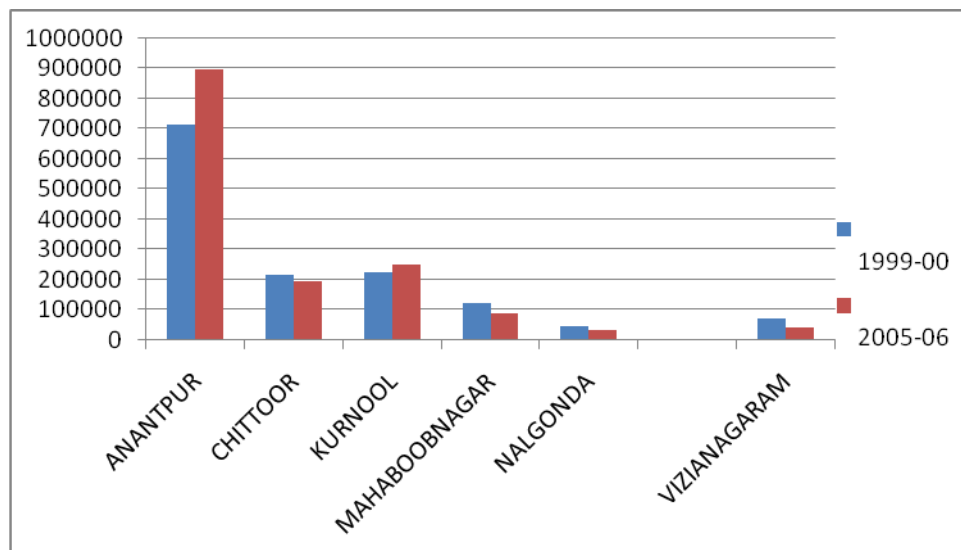
Major Groundnut Producing districts in Andhra Pradesh are Anantpur, Karnool, Mahaboobnagar, Nalgonda, Srikakulam, and Vizianagaram.

The production and yield trends in two years (1999-00, 2006-07) with high rainfall are considered to understand the production, area and yield trend in major groundnut cultivation districts of Andhra Pradesh.

	1999-00			2006-07		
	Area(Hectare)	Production(Tonnes)	Yield(Tonnes/Hectare)	Area(Hectare)	Production(Tonnes)	Yield(Tonnes/Hectare)
ANANTPUR	716650	274815	0.38	662111	62139	0.09
CHITTOOR	215370	143167	0.66	105294	99312	0.94
KURNOOL	225617	155846	0.69	210615	159164	0.76
MAHABOONAGAR	123135	62725	0.51	82829	88762	1.07
NALGONDA	48536	27236	0.56	27059	23353	0.86
VIZIANAGARAM	73429	77551	1.06	40283	37573	0.93

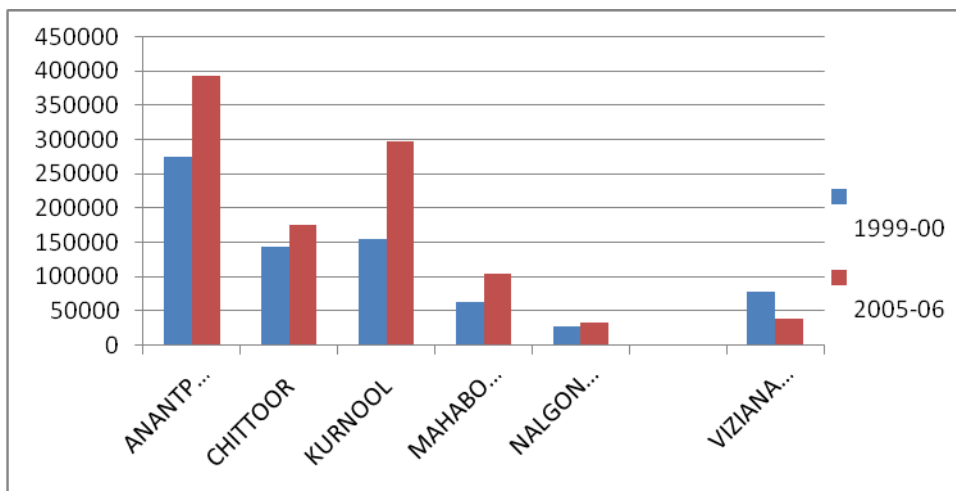
GROUNDNUT AREA, PRODUCTION AND YIELD TRENDS IN ANDHRA PRADESH:

Area: Area trends of the major 5 groundnut producing districts in Andhra Pradesh (Hectares)



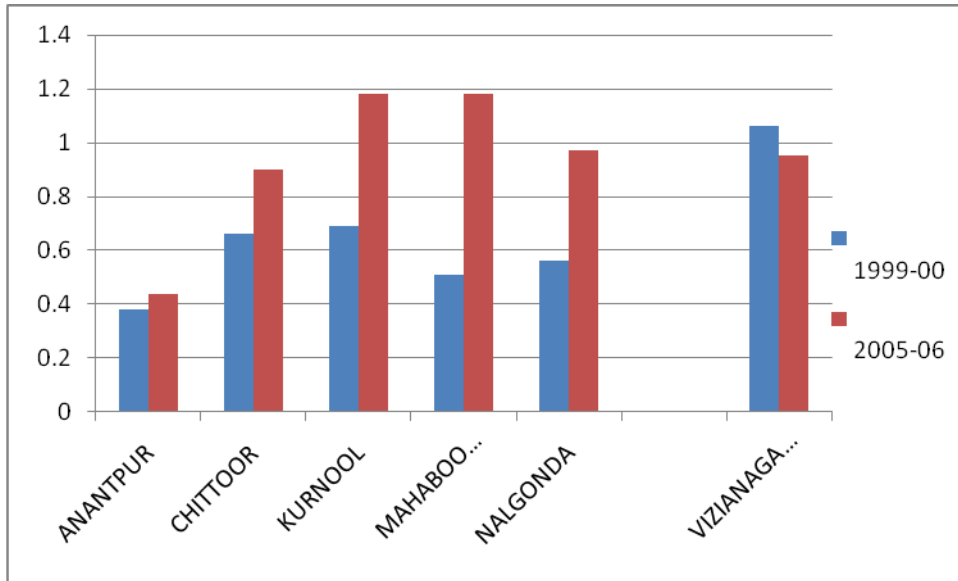
Groundnut is majorly grown as a subsistence crop in Andhra Pradesh. It is usually done as an intercrop with pulses like red gram or black gram. The area under groundnut cultivation has increased BY 4.49% from 1999-2000 to 2005-06. Anantpur district, which has the largest are under groundnut cultivation, increased the area under production by 25%.

PRODUCTION TRENDS OF 5 MAJOR GROUNDNUT PRODUCING DISTRICTS IN ANDHRA PRADESH



As seen from the above graph production has increased significantly from the 1999-2000 onwards. Kurnool district registered the maximum growth in the production from 1999-2000 to 2006-07. This can be attributed to the contunuanace of the production area from 1999-00 onwards along with the use improved seed varieties and better cultivation practices.

YIELD TRENDS OF 5 MAJOR GROUNDNUT PRODUCING DISTRICTS IN AP



Improved seed varieties along with areas good cultivation practices has lead to a significant increase in the growth rates of yield in Andhra Pradesh.

CONSUMPTION ANALYSIS:

More than half of groundnut production is crushed into oil for human consumption or industrial use. Protein meal, a byproduct of crushing, is an ingredient in livestock feeds. Groundnut is also consumed directly and is used in processed food and snacks.

Utilization of oil, meal and confectionary are all increasing, along with a gradual shift away from oil and meal into confectionary use. In the domestic market, the shares of these products have not changed substantially in the last decade. However, during this period there has been a significant shift towards confectionary use in some markets, notably in Andhra Pradesh Markets.

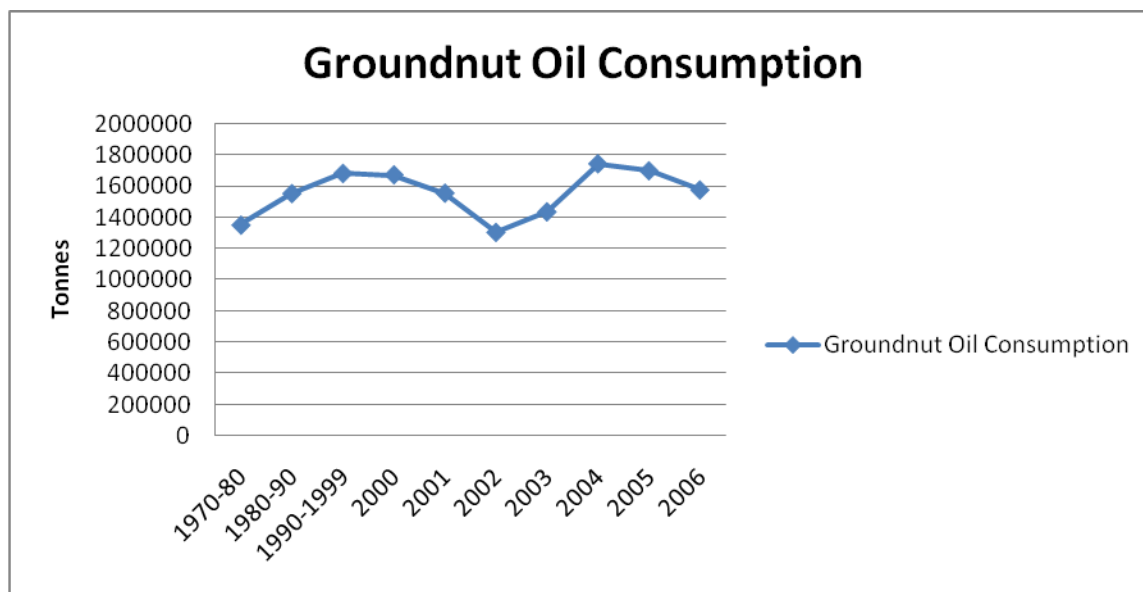
Groundnut Oil:

Demand for groundnut oil is determined by a variety of factors including relative prices of competing vegetable oils, income levels, demographic trends and cultural preferences.

Between 1979-81 and 2005-06 the world consumption of groundnut oil increased from 2.8 million tons to 4.3 million tons, despite rising international prices. However, in the domestic market, consumption of groundnut oil has shown a substantial decline.

Though the consumption of groundnut oil has increased by 29% from 1971-2005, the percentage of groundnut crushed to the total production of groundnut within the country has decreased from 85% in 1971 to 73% in 2006, this inspite of a 53% increase in the production during the same period (FAO Stat).

During the same period the consumption of groundnut directly or in processed form in the domestic format increased by almost 100%, which is almost 12% of the total production.



Groundnut Meal

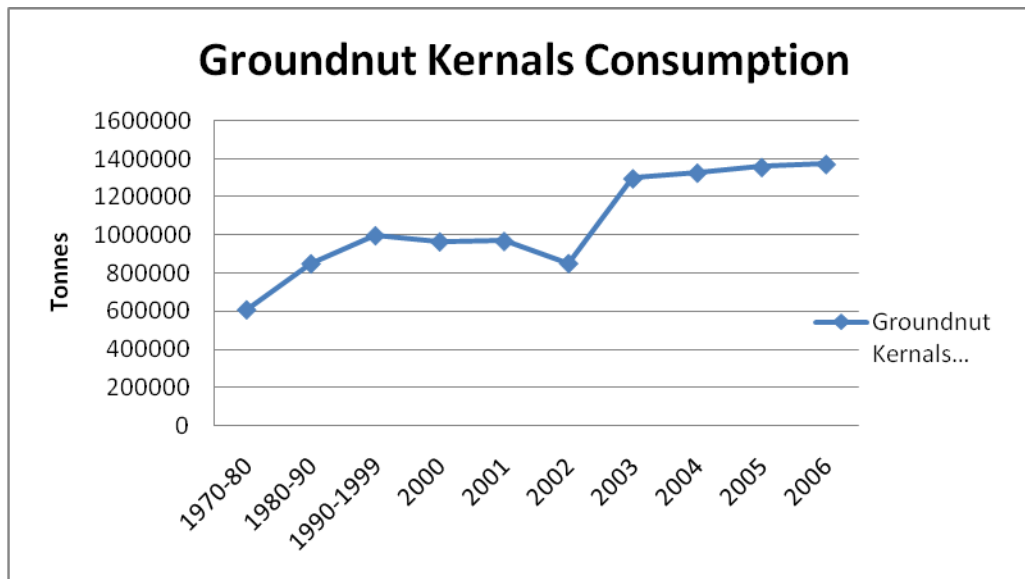
Groundnut meal is used primarily as a protein supplement in the livestock feed rations. The supply of groundnut meal is directly influenced by demand for groundnut oil, the primary product from crushed groundnut. Thus, production and price trends of meal are similar to those of oil, but with similar fluctuations across years. There is a high level of technical and economic substitutability in the market for oilseed meal; all meals can be used as livestock feed although the protein contents are different. Consequently, demand for groundnut meal depends largely on relative prices; between oilseed meals and cereal based meal substitutes on one hand and between competing oilseeds on the other hand.

Utilization of groundnut meal in India increased by 30% percent between 1970-71 and 2005-06 (Source: FAO Stat). The increase was concentrated in the livestock sector, where consumption of meal almost doubled despite rising prices. As incomes rose, consumption of meat and livestock products increased, generating demand for groundnut meal.

Confectionary Groundnut:

Worldwide, demand for groundnut for direct food consumption increased by nearly 80 percent between 1975-76 to 2005-06. Developing countries accounted for much of this increase- utilization of confectionary groundnuts nearly doubled and their share of global utilization increased from 75 to 83 percent.

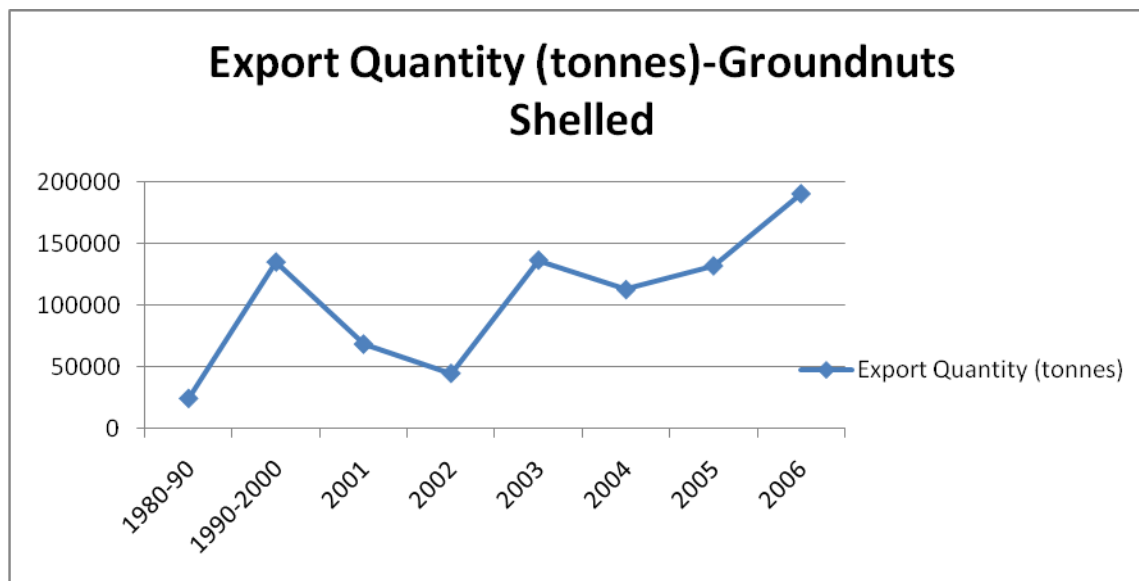
In India the percentage of groundnut consumed directly or in processed food increased from 1.2% in 1970-71 to 12% in 2005-06. This increase has led to significant changes in the marketing practices in major markets of India. Though the characteristics needed for utilization of groundnuts in confectionary form are very different from characteristics needed for crushing, it's increasingly seen that the Kernals meant for crushing are also being utilized in the confectionary market.

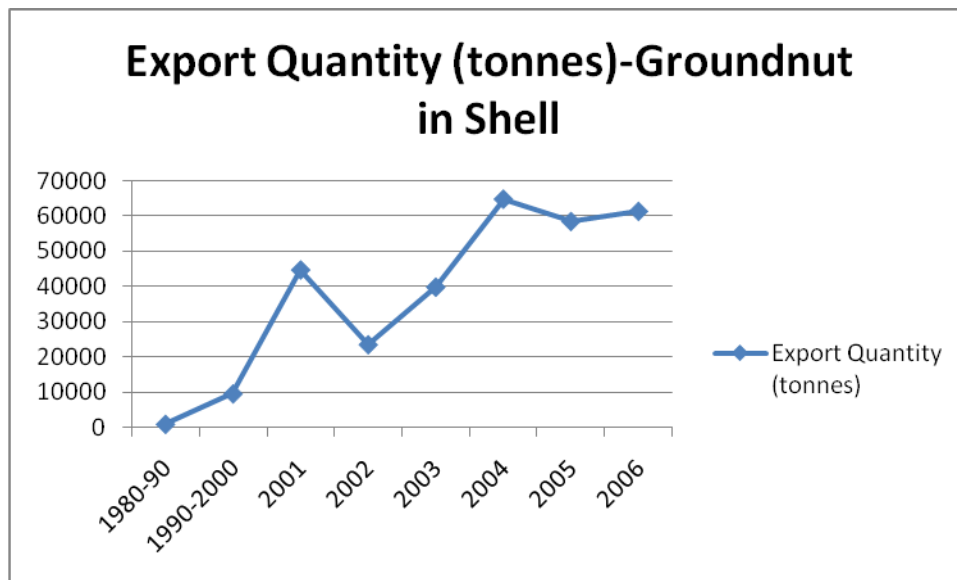


GROUNDNUT INTERNATIONAL TRADE:

India exports both types of groundnuts—groundnuts in shell and shelled groundnuts. It has been a traditional exporter of HPS groundnuts. It has imported meager quantity of shelled groundnut kernels and HPS from Norway and Japan, respectively. Indonesia, Malaysia, The UK, Ukraine, the USA, the Philippines, the Netherlands, Singapore and Sri Lanka are major groundnut importing countries. In 2006-07, India exported a total of 176,109.33 thousand kg groundnuts valued at Rs 54,430.45 lakh.

The share of groundnuts in shell was 39,779.84 thousand kg valued at Rs 11,039.43 lakh. The country-wise export of groundnuts in shell and shelled groundnuts during 2005-06 and 2006-07 is shown below.





As seen from the above data, both groundnut in shell as well as shelled groundnut exports have increased significantly from 1980 onwards. This is primarily due to the growing demand for groundnuts kernels in the confectionary market.

Another significant that has increased since 2001 is the export value of the Groundnut. The export value of 1 Kg groundnut increased from Rs.30 in 2000-01 to Rs.38 in 2005-06 (Source: FAO Stat). This has not only been beneficial for the traders involved in exporting but also on the farm prices in the market yard.

GROUNDNUT PROCESSING SYSTEMS

The processing industry for the groundnut is highly fragmented and complicated at times. This happens due to the large number of processing technologies present in the market and the government protection given to a few technologies.

Processing unit in India can be classified into two parts: Processing unit meant for decortification of the produce and processing unit meant for crushing of groundnut to produce oil and cake.

Traditionally most of the oil millers had a decortification unit and used to decortify the produce before crushing it. However with the emergence of the confectionary market, many new traders are now involved only in the decortification and sale of the produce.

Traders involved in the decortification of the produce can be grouped into two categories. A. Traders owning decortification unit with a capacity of 50 Quintal/hour. B. Traders owning decortification unit with a capacity of 10 Quintals/Hour.

A large trader usually sells around 30,000 tonnes of groundnut an year, while a small trader sells around 10,000 tonnes.

The value addition done at the trader's level involves- Cleaning, sorting, drying, decortification and bagging.

There is a premium in price for each of these value additions at the market level. The following increase in the price was identified for each value addition:

Value Addition	Increase in price/Kg
Cleaning and sorting	Rs.0.8- Rs.1
Drying	Rs.0.5-Rs.0.8
Decortification	Rs.4-Rs.6
Bagging	Rs.0.3-Rs.0.6

Source: Market Survey, 2009

Cleaning and Sorting: It is usually done to remove all the foreign matter and shriveled seeds from the produce. A typical bag of 50 Kgs usually produces 3 Kgs of foreign matter and shriveled seeds and hence an increase in price for this value addition.

Drying: Moisture content is usually one of the major factors in price determination of the produce. Traders usually prefer the moisture content of the produce to be around 8% before decortification. However most of the produce that comes to the market has a moisture content of around 10% (Rabi) and 12%(Kharif).

Decortification: Decortification of the produce involved shelling the kernals from the pods. It is one of the biggest value additions to the produce from the marketing point of you. A graded decertifies produce usually fetches a good price in the confectionary market.

Oil processing:

The processing sector of the oil is now divided into six distinct segments and dominated by micro-scale, traditional crushers, *ghanis* to whom the Small Scale Industry (SSI) policy of 1977 reserves the processing of groundnut and rapeseed-mustardseed processing. These industrialists produce on average only 60 kilos a day, one tenth of their total capacity, using electric power to extract oil from seeds usually through a simple screw press.

The next most numerous class of processors, who use similar, simple technology are the small-scale expellers limited by the SSI Reservation to a daily production of no more than ten tons but rewarded by sharing in the monopoly on groundnut and rapeseed-mustardseed processing with the *ghanis*.

Where the two classes of small-scale producers turn out only oil (*ghanis*) or oil and expeller cake with a high (often over 10%) residual oil content, the next largest class - second in terms of capacity and total output - contains solvent extractors who use modern technology to process low oil and high meal seeds (e.g., soybeans, cottonseed) or low oil byproduct materials (e.g., expeller cake, rice bran) into edible oil and de-oiled cake suitable as a high-protein animal feed. Even

though they process as much as 50 tons a day, these "large-scale" solvent extractors utilize only 34 percent of their own capacity.

Finally, traditional oil refiners and vanaspati enterprises which hydrogenate refined oil to produce vegetable shortening make up the high end of the processing sector. Only Small quantity of expelled groundnut oil is usually sent to the refineries. Unlike sunflower oil, expelled groundnut oil is usually considered good for edible purpose and hence there very little incentive refineries in processing it.

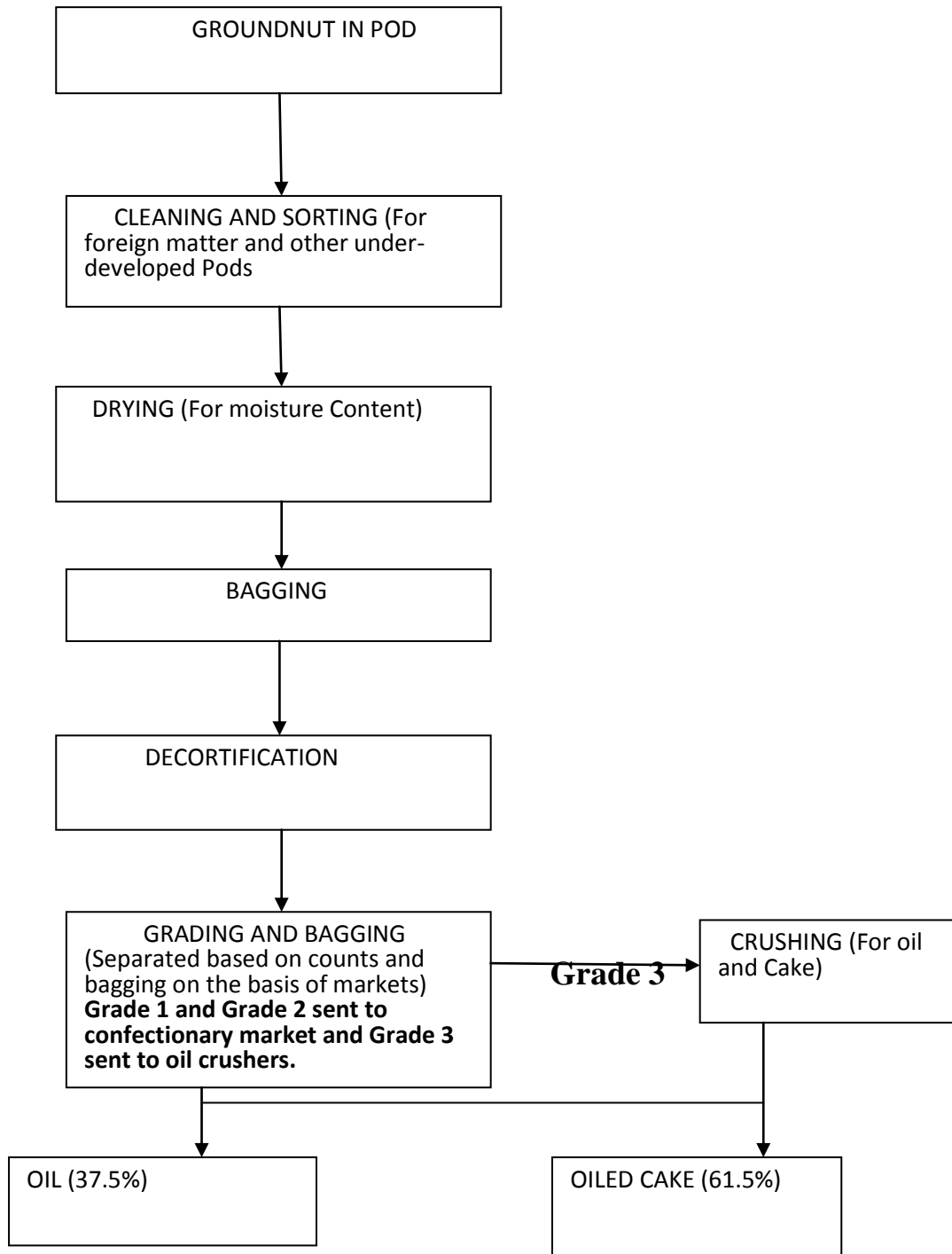
Price ranges in the market for each of these oils is mentioned in the below given table, however it must be noted that there is high level of variation in the groundnut oil in the market:

Product	Price Range
Un-refined Oil	Rs.55-Rs.65
Solvent Extracted Oil	Rs.67-Rs.73
Refined Oil	Rs.73-Rs.82

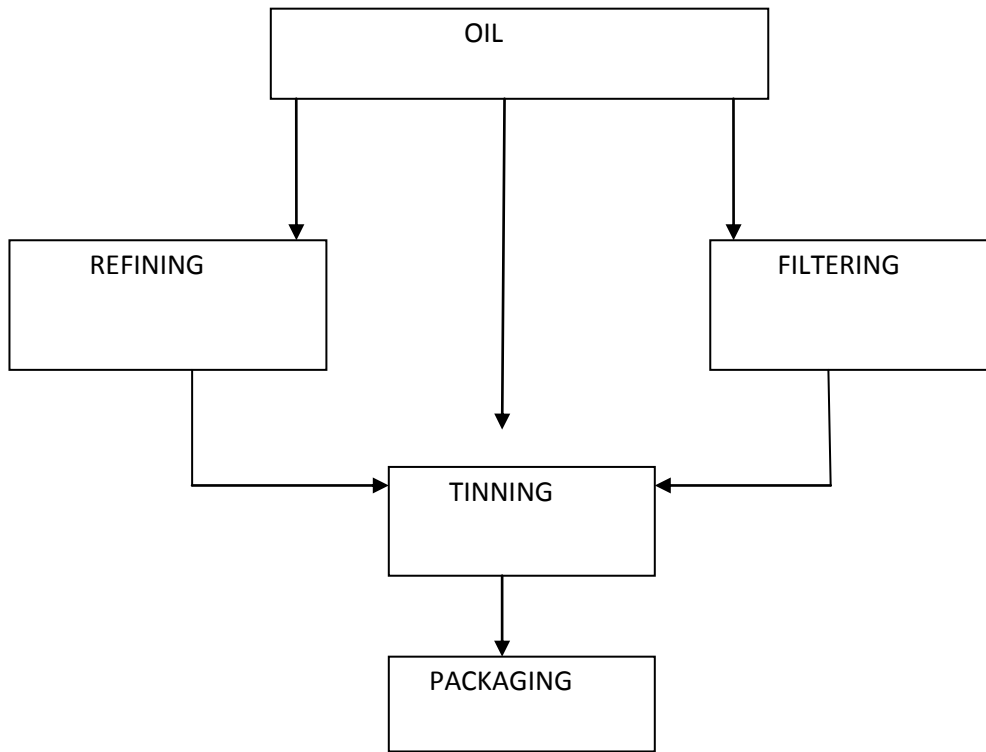
Source: Market Survey, 2009

A detailed processing flow chart is given below, it must be mentioned that each of the value additions fetch higher prices. However, almost no value addition is done at the farmer's end in the market.

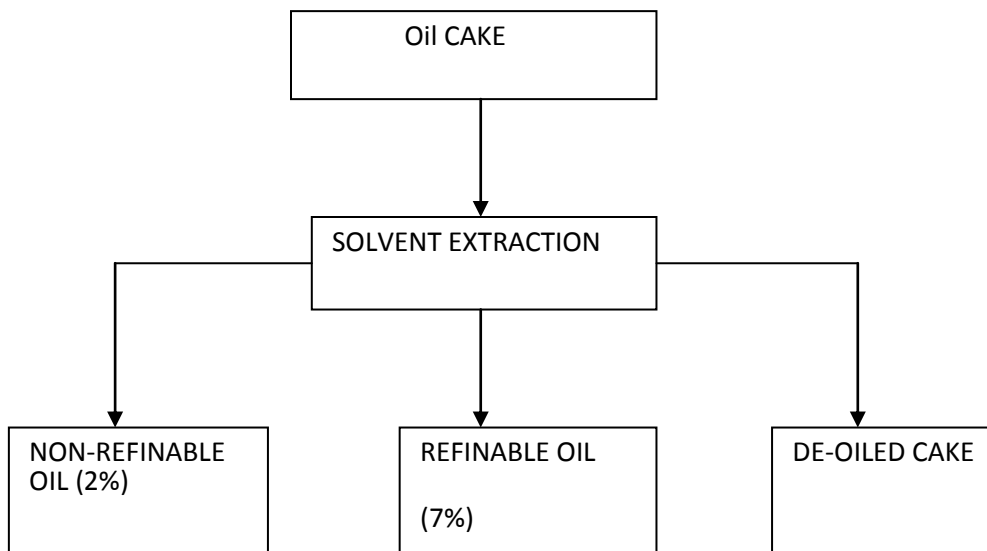
GROUNDNUT PROCESSING CHART



GROUNDNUT OIL



CAKE



Price Determining Mechanisms:

The produce is then priced on certain characteristics identified by the traders. Some of the characteristics that are considered while determining the price of the produce are:

- 1> Shelling percentage
- 2> Seed weight
- 3> Moisture Content
- 4> Percentage Shriveled Seeds
- 5> Percentage of damaged seeds
- 6> Extent of pod scarification/damage
- 7> Foreign Matter

Shelling Percentage: Higher Shelling percentage (Percentage of seed weight in pod weight) implies more kernals and less waste. The higher the shelling percentage, the higher is the out turn of final products i.e., seed and oil. The most common outturn for a produce should be 75%. Which indicated that in a 100gms of pods around 75gms is seed weight. Prices increase proportionately with increase in shelling percentage. An experienced buyer usually estimates the shelling percentage by opening up a few pods and examining the extent of seed development.

Seed Weight: Seed size and weight vary from cultivator to cultivator. Within the same cultivator, seed size and weight depend on the extent of seed maturity. In the recent times seed weight has become one of the most important factor for determining the price of the produce. Seed weight is usually the most important factor for the Mumbai factor and hence an important factor for traders exporting to Mumbai markets.

The usual way of determining the seed weight is by picking up 28gm seeds/kernals and looking at it count. A lower count will give a fetch a higher price in the market. Usually a count of 60-70 and 70-80 (60 or 70 seeds in 28gm seeds) is considered exportable variety. 80-90 is considered good for exporting to sweet manufacturers. Anything above 80-90 is usually sold to the oil millers by the traders.(Source: AP Market Survey)

Moisture Content: Moisture content is another important factor for determining the price of the produce. Most of the traders either bring a moisture meter or estimate the moisture by pressing to the seeds to their palm. The preferred moisture content differs depending on Kharif and rabi. In Kharif the most preferred moisture content is around 12%-13%. Price decreases with increase in moisture content. However, in rabi the most preferred moisture content is 8% to 9%.

Percentage of shriveled seeds: In trade circles it is believed that the shriveled seeds, compared with developed seed contain less oil and is not possible to decortify them using the decortification machines. Therefore, the higher the percentage of shriveled seeds , the lower the quality of oil and hence lower the price.

Percentage of damaged seeds: The presence of damaged seeds has an effect on colour and shape and is cannot be used for decortification in the decortification machines. Therefore, the higher the percentage of damaged seeds, the lower is the preference, hence lower the price.

Pod Scarification/damage: Scarification occurs at a later stage of pod maturity as a result of termite damage. The groundnut shell becomes weak as the outer layer of the shell is damaged. Higher the scarification level, lower the price.

Foreign Matter: Foreign Matter in a bag is defined as the mud and stones in the 50/40/35kg bag of groundnut. A trader usually spreads the groundnut in bag and weighs them separately to estimate the extent of foreign matter in a bag. Higher the foreign matter, lower the price.

Grading of the produce:

In the 90s, the grading of the produce was usually done on the basis of the shelling percentage and then the moisture content. However with growth of the confectionary trade and integration of the markets, the importance assigned to the seed weight has increased and hence grading is now on the basis of seed weight.

Usually it's the count in 1ounce(28.5gms) of seed that is used for grading the produce. A produce with count 60-70 is grade 1, 70-80 is grade 2, 80-90 grade 3 and so on. Grade 1 and Grade 2 are regarded as exportable qualities while grade 3 is meant for sweet manufacturers in Mumbai or oil millers in local area. Grade 4 and other grades that are not suitable for Mumbai markets are usually sold to the oil millers in the local area.

Information about the Markets Surveyed:

Adoni, Gadwal and Jedcherla Market:

Adoni, Gadwal and Jedcherla are some of the biggest groundnut markets in AP. Almost 85% of the produce from 40-50 villages is brought by the farmers to these market yards. Commission agents in these market yards usually facilitate the sale of produce by inviting the traders and oil millers to the bidding process.

In the bidding process the traders and oil millers usually assign prices to the produce depending the various characteristics. All the bids are then taken to the market yard officials who then announce the highest bidder. Most of the traders and millers from local area and traders from Maharashtra and Tamil Nadu participate in this process.

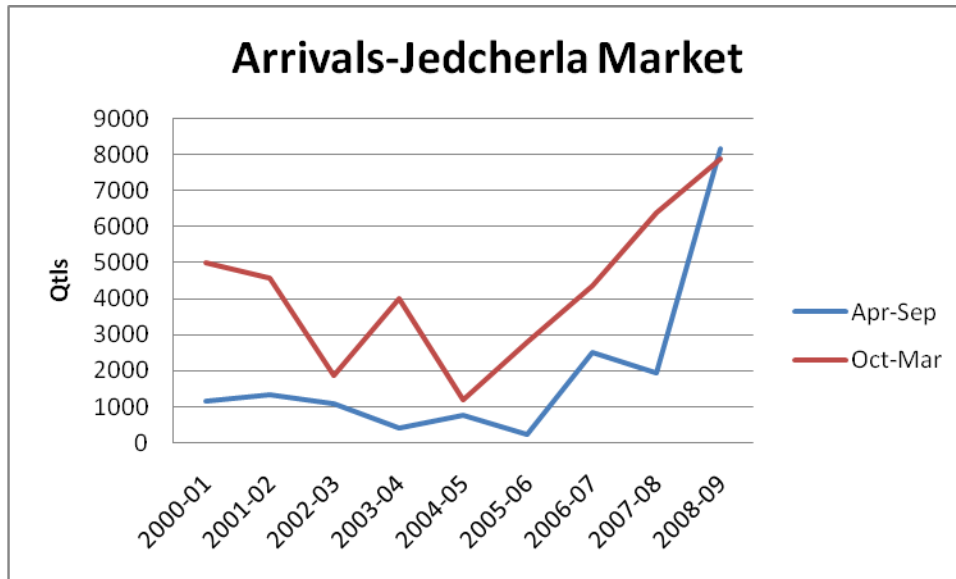
Most of the produce in the 90s was usually bought by the oil millers or by traders who decortify and sell it to the oil millers. However due to the high level of integration with the Mumbai markets and participation of traders from Maharashtra the utilization of produce has shifted toward confectionary purpose in these markets.

Due to premiums attached in the confectionary trade most of the traders now prefer selling their decortified produce to the Maharashtra market. This has resulted in increase of the prices at the farmers end. On the other hand, the oil millers have not been able to buy the high quality produce since the prevailing prices are well above the parity prices. This has resulted in oil millers shifting towards trading for confectionary markets or shifting to crushing of other crops like sunflower and soyabean. These markets have also seen most of the local oil milling units shut down in the last 4 years.

Adoni which once was regarded as an oil capital for Andhra Pradesh now imports oil from Maharashtra and Gujarat.

The below given charts show the price variation in all these markets from 2000 onwards. As seen from the above graph the prices have increased significantly from 2005-06 onwards. While it is a good sign for the groundnut cultivating farmers, the oil millers are increasingly facing some hard

times in business and it's possible that some more millers will be shutting down their units in future.



As seen from the above graph, the acceptance of the produce from these markets by the confectionary has had significant impact on the prices of the farmers from 2005-06 onwards.

The trading and price determination has also seen significant changes in these markets due to its integration with export and Mumbai markets. While shelling percentage was considered the most important factor for determining the price, the count per ounce which is the price determination factor for exporters is now being practiced while buying the produce at the farmers end.

Adoni Market

Produce going toward confectionary	Produce going for crushing
70%	30%

Source: Market Survey, 2009

Jedcherla Market:

Produce going towards Confectionary	Produce going for Crushing
80%	20%

Source: Market Survey, 2009

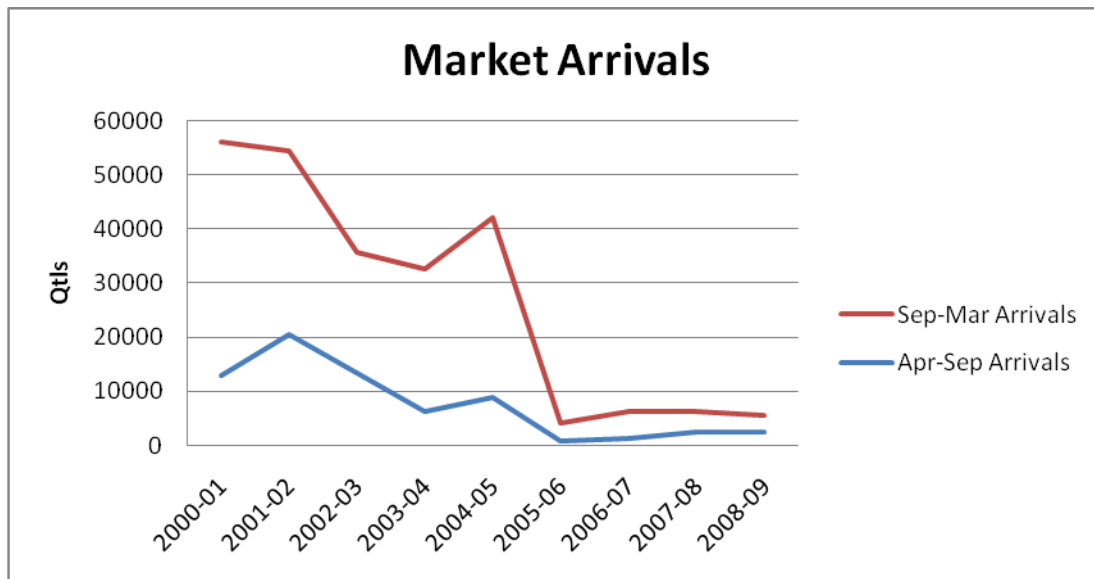
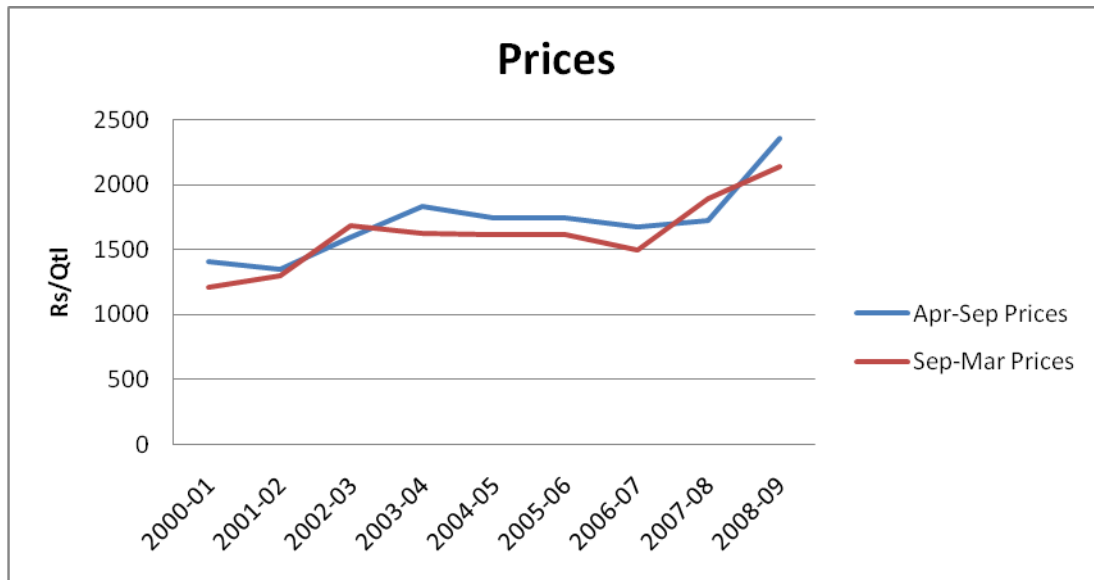
Kurnool Market:

Kurnool Market is known to be one of the most important places for oil in India. It still has the largest number of oil millers connected to the market in AP. Though confectionary trade in these markets have also increased in recent times, its impact has not been as significant as some of other big groundnut markets. Oil millers still remain the largest buyers of the produce in this market.

Almost 90% of the produce by all farmers from around 50 villages is brought to this market. Though large quantities of groundnut are brought in Kharif, the rabi season has also started seeing an increase in the groundnut arrivals in the past few years. The commission agents usually charge 2% as commission from farmers in this market.

Since the confectionary traders are not major players in this market. Shelling percentage and moisture content are the major price determining factors in this market. There is an oil millers association in this market which plays a major role in trading of the produce.

Produce going for confectionary	Produce going for Crushes
30%	70%



As seen from the above graphs, the rise in prices has mainly been due to the drastic fall in the arrivals of the groundnut. It suggests that there is a decrease in the area and yield of groundnut in the villages surrounding the market. Lack of sufficient arrivals is one of the reasons behind confectionary traders not preferring the Kurnool market.

MARKETING CHANNELS FOR GROUNDNUT:

The marketing or trade of groundnuts performs the function of assembly, transportation, brokerage, and sometimes storage in moving the produce to the mills. Trading practices of groundnuts in the early days (1930's and 40's,90s) as well as today is presented in the following sections.

Marketing of Groundnuts in the Early Times

(a) Availability of groundnuts

Marketing practices of groundnuts in the early years pertains to the period when India was in the last stages of colonial rule, and moving towards its independence. From 1931 to 1940, the average annual production was 27.5 thousand tons in shell, and an average yield of 1,016 kg/ha. By 1940- 41, production was 34.05 thousand tons, which was contributed by Madras Presidency (51.7%), Hyderabad State (18%), Bombay Presidency (17.6%), and Bombay State including Gujarat, western India, and Kolhapur (8.8%). Spreading varieties gave much higher yields than bunch varieties, and irrigation greatly raised output. Four types of groundnut were grown in India, though marketed under many names; e.g., Coromandel, Bold, Khandesh (or Peanuts), and Red Natal.

Producers retained about 15 percent of the seed produced, while 11 percent went for sowing, 2 percent for crushing in chekkus, and 1 percent for consumption. *Chekku* is an intermediate groundnut oil extraction technology which came into existence after the traditional animal driven *Ghani* technology but before the advent of modern power operated oil mills. Harvest labor was paid in kind at one-tenth to one-sixth of the produce, but even this quantity was frequently sold in the market for cash. Market arrivals were October to January, and an average of 77 percent of all groundnut production was estimated to have been marketed for use in India between 1933 and 1938, to be utilized for oil extraction (42.5%), seed purposes (11.4%), edible use (6.7%), and export (39.4%). Nut prices were influenced by several factors. Coromandel fetched a higher price than Khandesh, and machine-decorticated units a better price than hand-decorticated material, the difference being as much as 24 percent in 1937-38. Peak prices were to be had in December and January and from June to August, and a deep harvest depression occurred from

August to December, the spread being as high as 40 percent in certain markets (Achaya, 1990).

(b) Assembling of groundnuts for marketing

The marketable surplus, constituting about 85 percent of production, reached the market from producers (52% mostly in shell), village merchants (20%), and agents of wholesale merchants, decorticating establishments and oil mills (15%), the relative figure varying in different areas.

Decorticating establishments in south India played an important role in the assemblage and distribution of groundnuts. As wholesale merchants, they bought and stocked nuts on their own account as commission agents, they stocked and sold, either as pods or nuts, material brought to them by producers and village merchants; and as processors, they decorticated on contract and also undertook drying and bagging.

Cultivators, deeply in debt, had little option but to sell to their creditors, who might pledge their crops even up to ten years in advance. Village merchants were small tradesmen (*Banias*) working in a confined radius, who often advanced loans to cultivators and bought produce on behalf of wholesale merchants. Landlords sold produce that they received from cultivators in lieu of rent. Agents of wholesale merchants, decorticating establishments and village merchants bought from villages, and the first two at their own premises from producers and village merchants, to whom they might lend bags to fetch produce (Achaya, 1990).

Marketing Practices during the 90s:

Although marketing practices differ with each market, there are about five well- identified channels in existence (Srivastava, 1998). These channels are listed and discussed in the following sections.

- Producer to village trader who in turn sells either directly to mills or indirectly through wholesalers or commission agents.
- Producer to commission agents to millers either directly or through wholesalers
- Producer to broker who sells to millers directly or sometimes through wholesalers
- Producer to millers directly

- Producer to cooperative society to cooperative oil mills

(a) Village trader

The village trader procures groundnuts from the farmer at the farm or village itself, so the farmer does not have to bring the produce to market. All the marketing costs are borne by the trader. Sometimes farmers get loans from these traders. The normal procedure of payment to the farmer is after the produce is sold in the market. These traders sometime directly sell the seeds to the miller and sometime through a commission agent who in turn sells to a wholesaler, or directly to millers.

(b) Commission agent

The commission agent is a trader who buys or sells, or offers to buy or sell on an agreed commission. He offers to do anything necessary for completing and carrying out the transaction. The major portion of seeds is sold through the commission agent in a regulated market, which is called *Mandi* or an unregulated market area. The commission charge ranges between 0.75% and 1% of the total value of the pods sold. Charges of transporting from the farm to the market are born by the farmer and from market to the mill by the miller. In the regulated market the payment to the farmer is made on the sale day itself. The commission agent is supposed to recover payment from the miller within three days.

(c) Broker

In some of the states, processors or wholesalers used to recruit some people who work as their brokers in purchasing groundnut seeds. They directly purchase seed from the farmer on behalf of these people.

(d) Direct sale from producer to miller

In a direct sale to the miller, the price is not fixed at the time of sale. The parties mutually agree on a date for the price to be fixed and the sale to be recorded. The payment to farmers, therefore, made when the sale is recorded according to that day's prevailing price. Direct sales to the

miller, however, accounted for a very small proportion of the sales. The bulk of the produce used to move from the farmer to the miller for crushing through middlemen. Direct sales to millers accounted for just 13 percent. Nearly 82 percent of the produce moved only through middlemen.

(e) Sale through cooperatives

Sale through cooperatives was another phenomenon in groundnut trade. The cooperative acted as a commission agent. In this system, the farmer pays less commission. Transportation, loading and unloading expenses are borne by the farmer who is paid after the produce is sold.

Cooperatives sometimes supplied inputs to members on credit.

Present Market Practices:

With the integration of markets from across the states, the trade as well as the utilization of groundnut is changing significantly. With the availability of cheaper oil from other sources, groundnut is losing its ground as a premier oil seed crop. However, groundnut is also an important food crop and in recent years the confectionery types have assumed great significance as snack food in domestic and international markets. Hence, more emphasis is being given to improve and exploit groundnut as a food crop to make its farming more competitive and remunerative. The quality requirement of confectionery groundnut is more stringent and distinctly different from groundnut as an oil seed crop like bold seed, high protein, high oleic acid/linoleic acid (O/L) ratio and low oil.

A research was undertaken in 4 major groundnut markets of Andhra Pradesh to understand better the effect of change in utilization of the groundnut on its marketing. While the marketing channels of 90s have remained same in smaller groundnut markets, the larger markets of AP have seen a significant change in its marketing channels which are now dominated by traders involved in decortification and sale of produce to the Mumbai markets.

As mentioned earlier the prices, structure and level of integration with other markets differ with each market. Hence the markets have been distinguished based on their structure, conduct and performance.

Marketing Channels, Marketing Costs and Quality requirements:

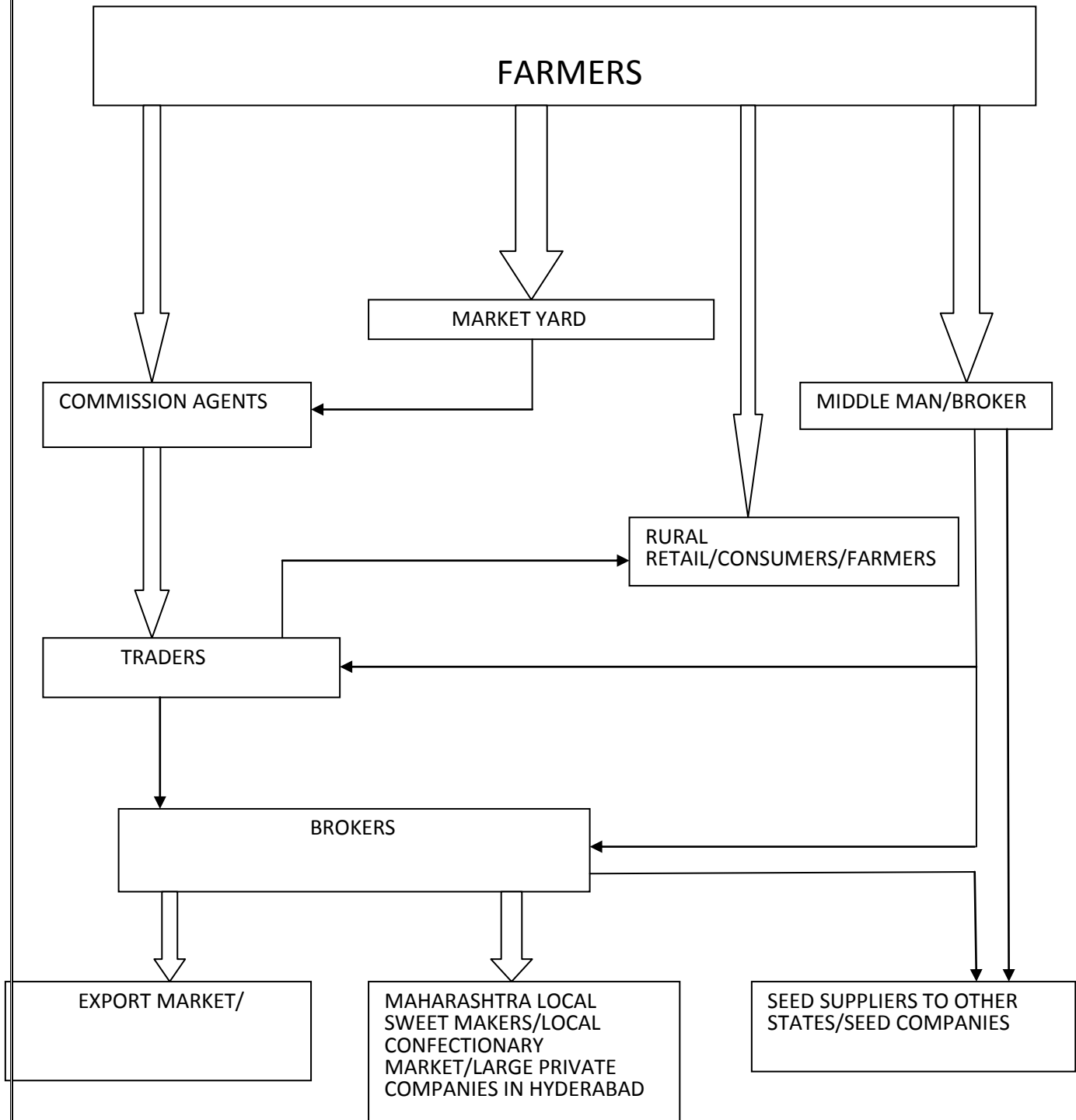
In this section, we identify and describe the major channels through which groundnut and its derivative products are marketed presently and associated margins, marketing costs and quality requirements. Products typically pass through a number of players/agents along the different marketing channels linking producers with consumers, hence producing value chain. The strength of the value depends on the degree of trust and relationships that exist among the different participants. In situations where sharing of market information is poor and players behave in ways that undermine the activities of others, the value chain is highly underdeveloped and largely inefficient and inequitable. Transaction costs are incurred at each node for cleaning, packaging, transport, and other marketing functions required in buying and selling the product. This tends to increase the marketing costs and lower the share of the consumer price received by the smallholder farmers, especially when the value chain is overextended, involving a large number of nodes and players.

Marketing Channels for Groundnut Kernals:

Marketing Channels for Kernals:

- 1> Farmer-Commission Agent-Trader-Broker-Exporter
- 2> Farmer-Commission Agent-Trader-Broker-Sweet Manufacturer
- 3> Famer-Commission Agent-Trader-Broker- Urban Retailer
- 4> Farmer-Broker-Seed Distribution traders/Companies
- 5> Farmer-Broker-Trader-Broker-Export
- 6> Farmer-Broker-Trader-broker- Sweet Manufacturing Companies

Marketing Channels for Kernels in the confectionary Market and Export Market



The kernel market profits are usually determined by the export and local confectionary market demand. The study identified six marketing channels for groundnut kernels. Groundnut kernels

are used either as seed purpose, export or in the local confectionary market like sweet makers. The Mumbai confectionary market and export markets demand that the kernels are graded as per ounce count and packed separately.

The traders/agents selling the kernels, grade the produce in the following way:

Grade 1: 60-70/Ounce

Grade 2: 70-80/Ounce

Grade 3: 80-90/Ounce

Channel 1 is the most dominant channel in the groundnut export market. Traders usually buy the groundnut from the farmers through the commission agents and decortify them. The costs incurred by the traders are in the form of labour, decortification, drying, grading and bagging.

The produce while being sold by the traders should ideally have a moisture content of around 7-8%.

The shape of the groundnut is another major requirement, however many a times it depends on the market. The Mumbai confectionary market usually requires a round kernel with a 70-80 count, while the export market demand both round and bold kernels depending on the supply.

Shelling, foreign matter and development of seeds are other requirements considered by the kernel market.

Once the produce reaches the exporter, he will repackage them according to the requirements of the destination and sends them through shipments. Transportation costs, market fee and packaging costs are major costs incurred at the exporters end.

The detailed marketing costs and profits are mentioned in the below given tables.

Groundnut Selling price at different Marketing Channels (Rs/Qtl)

Actor	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6
Farmer	2700	2500	2500	2700	2700	2500
Commission Agent	2700	2500	2500			
Broker(Between Farmers and Other actors)				2825	2820	2625
Traders	3700	3300	3000		3600	3300
Brokers(Between Other Market actors)	3800	3400	3060		3720	3400
Exporters	4600				4600	
Sweet Manufacturers		NA				NA
Local Retailers			3400			
Seed Traders/Companies				3700		
Farmers Share in the Final Price	57.6%	79.4%*	72.2%	72.9%	58.5%	73.5%*
Total Marketing Costs (For 100Kgs)	1105	620	745	665	1145	655
Costs as share of Final Price (%)	24.02	18.2	21.9	17.9	24.8	19.2
% of Marketing Costs(Final Price-Farmer Price)	56.7%	65.7%	72.9%	66.5%	60.3%	72.7%

Source: Market Survey, 2009

There are middle men almost at every exchange in the channel. This highlights the lack of flow in the information and hence the excess transaction cost incurred at each linkage. The marketing costs incurred by the agents/ middle men is almost 5% of the total costs incurred along the marketing channel, while the profit is around 11% of the total profit of the marketing channel.

Grade 1 is considered as an export quality produce, while grade 2 is usually considered good for Maharashtra confectionery market. Traders sell the grade 2 produce to the Maharashtra market through the same agents as that of the export. However the marketing costs and the profits

retained are less than channel 1. The price difference between each grade at the final linkage in channel is around Rs.750.

Marketing Margins and Costs:

	Channel 1			Channel 2			Channel 3		
	Gross Margin	Total Cost	Net Margin	Gross Margin	Total Cost	Net Margin	Gross Margin	Total Cost	Net Margin
Commission Agent	48	10	38	44	10	34	44	10	34
Village Trader (Between farmer and trader)									
Trader	1000	372	628	800	345	455	500	280	220
Broker	100	50	50	100	50	50	60	30	30
Exporters	800	458	342						
Sweet Manufacturing Companies				NA					
Local Retailers							340	210	130
Seed Company/Traders									
Total									

Source: Market Survey, 2009

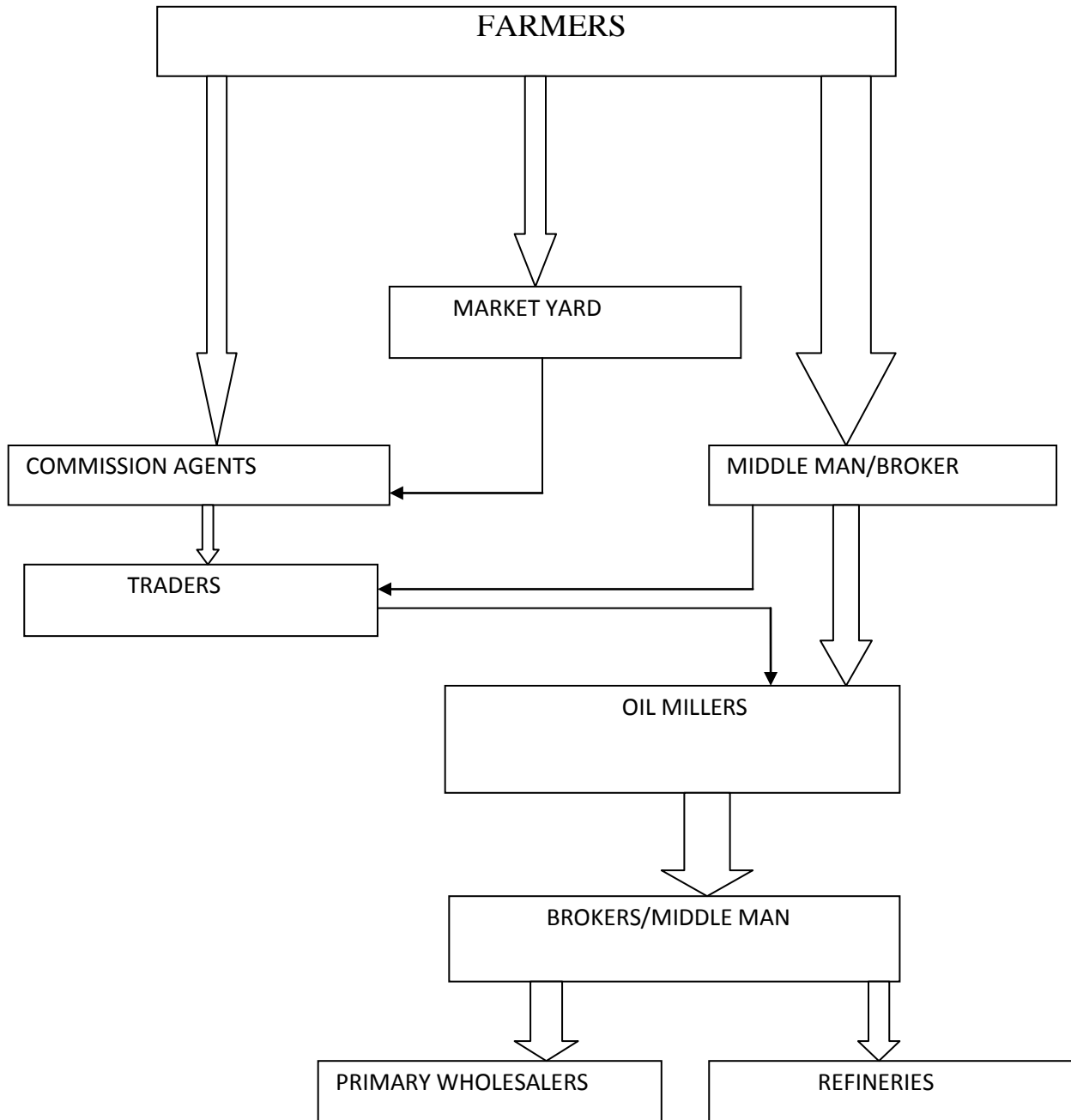
	Channel 4			Channel 5			Channel 6		
	Gross Margin	Total Cost	Net Margin	Gross Margin	Total Cost	Net Margin	Gross Margin	Total Cost	Net Margin
Commission Agent									
Village Trader(Between farmer and trader)	125	30	95	120	30	90	125	30	95
Trader				780	372	408	675	350	325
Broker				120	60	60	100	50	50
Exporters				880	458	422			
Sweet Manufacturing Companies							NA		
Local Retailers									
Seed Company/Traders	875	410	465						
Total									

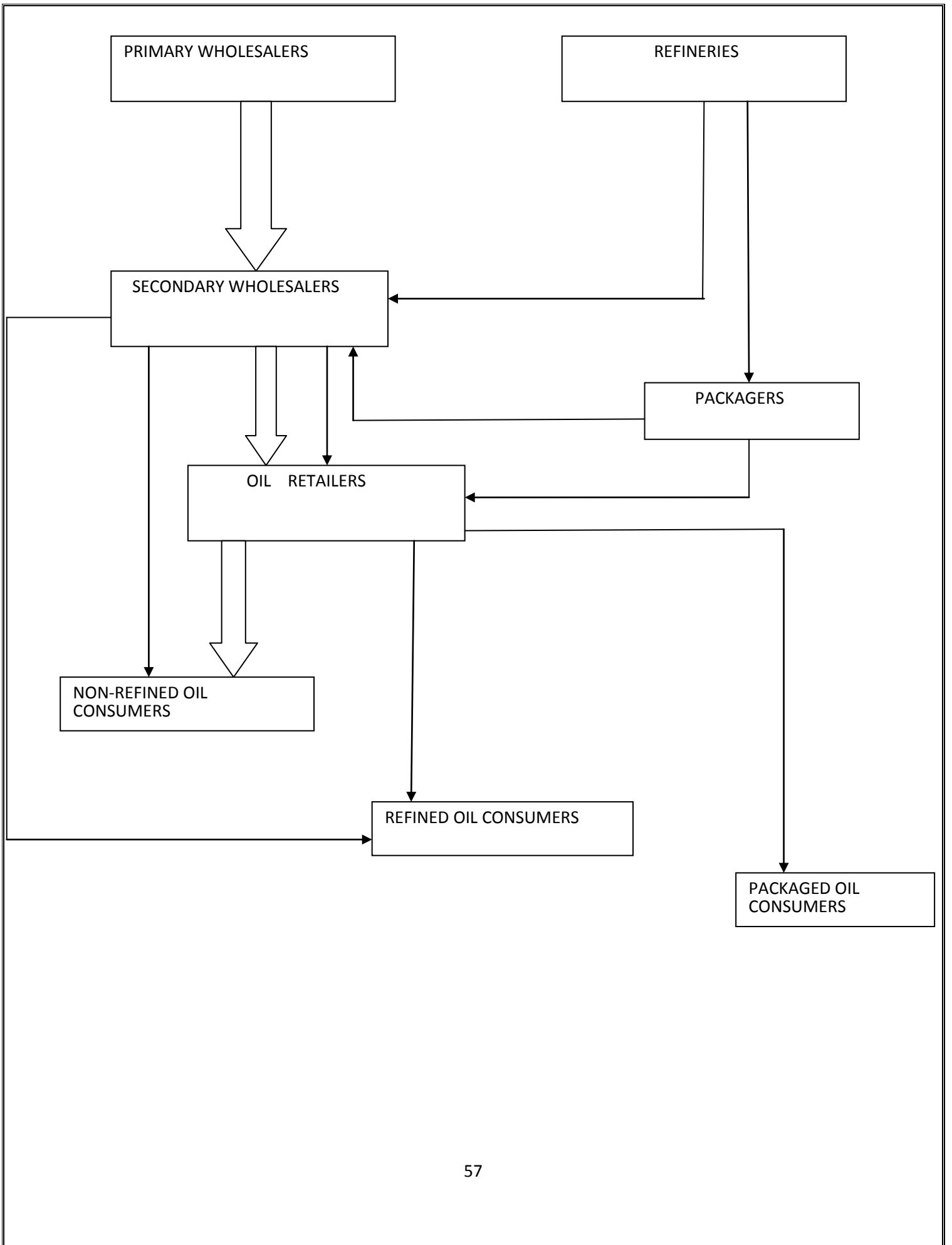
Source: Market Survey, 2009

In channel 4, 5 and 6 most of the produce is bought by the village trader at the farm gate. The general assumption that the farmer is able to get better profit because of less marketing costs is proved wrong through the survey results. Though farmer saves up money in transportation and labour he ends up paying more than the ones taking the produce to the market yard. This happens due to factors like weighing problems, lack of information about other competitors willing to buy the produce and other market related information.

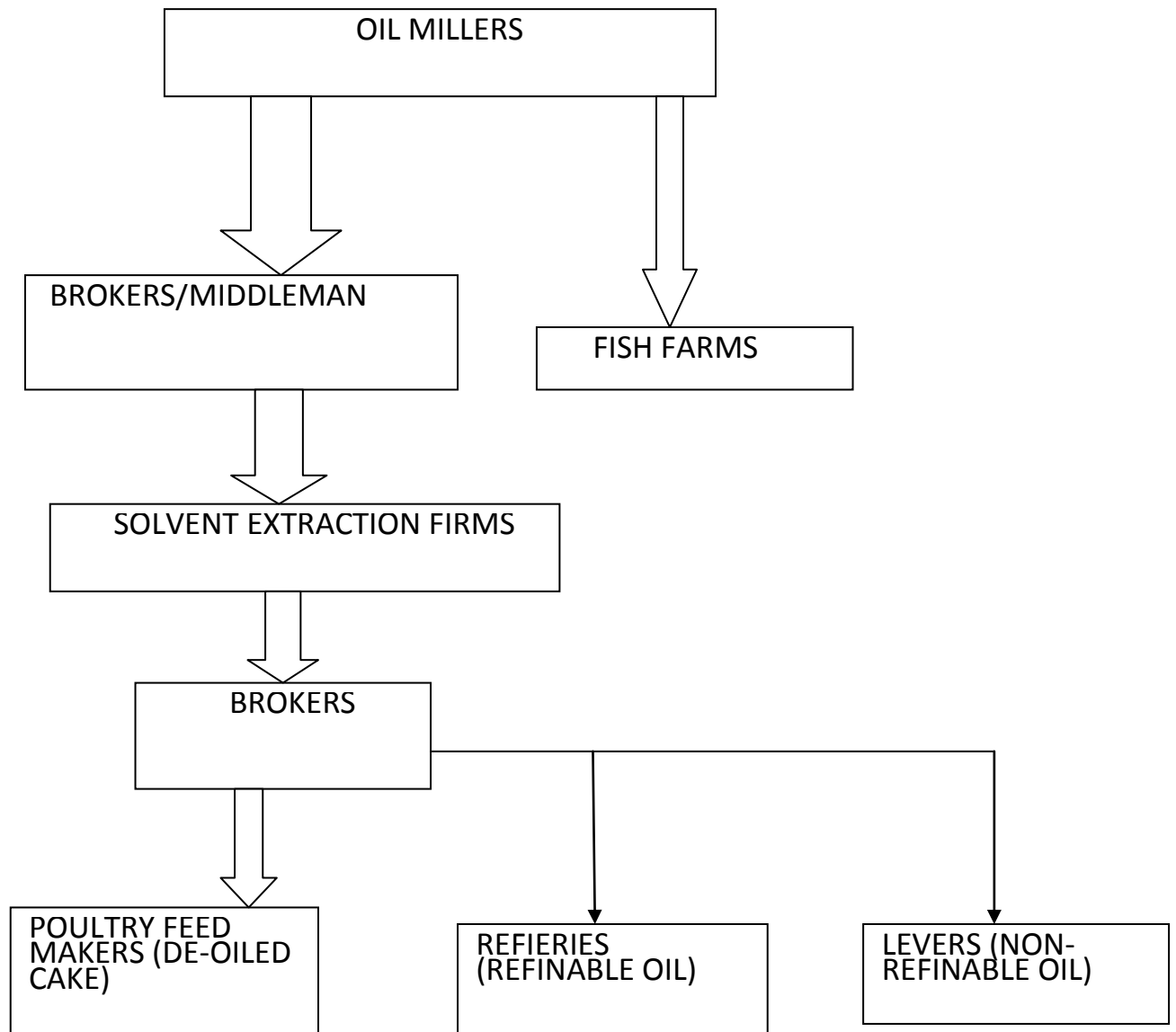
In major markets like Anantpur which has the largest area under groundnut cultivation, channel 5 and channel 6 are dominant. Most of the produce in Anantpur is usually bought by the village traders at the farm gate itself. The produce during the Kharif season is bought by traders from Tamil Nadu through the village traders and is sold as seed to farmers cultivating groundnut in the Rabi season. There is usually a buy back arrangement by these traders who buy the Rabi produce in Tamil Nadu and sell it in the confectionary market and export market of Maharashtra.

Marketing Channel for Groundnut Oil





Marketing Channels for Groundnut Cake:

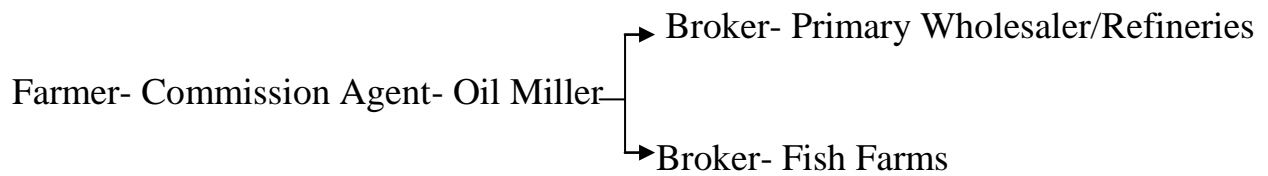


Marketing Channel for Groundnut Oil and Cake:

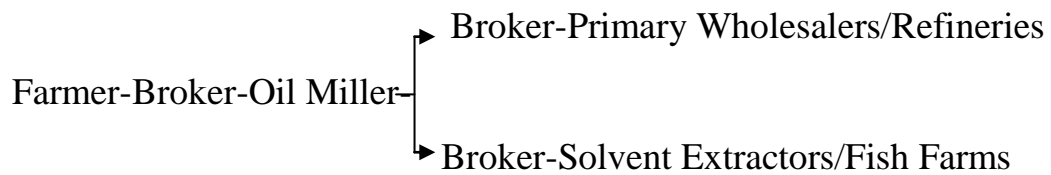
Channel 1:



Channel 2:



Channel 3:



Empirical Method to find the final value of derivative products produced from X kg of Groundnut after crushing:

Groundnuts are crushed to produce many derivative products which are of commercial value to millers and many other actors in the value chain.

As seen from the processing chart, groundnut crushing produces both oil and oiled cake. Oil is either directly sold in the edible oil market or refined and sold as packaged oil. Oiled Cake, on the other hand, is usually sold either to fish farms or to solvent extraction firms. The solvent extraction firms further process the deoiled cake to get oil and deoiled cake. While the deoiled cake is sold in the feed market as poultry feed, the oil is further refined and sold in the oil market. The percentage of oil and cake extracted at each processing unit usually depends on the type of seed used for crushing and the kind of technology used for processing. Hence the final values of derivative products differ depending on the above factors.

However its important to understand final value of derivative products produced from groundnut after crushing. A detailed processing model has been worked on to derive the final value of products derived from groundnut after crushing:

Groundnut Crushing Model:

The sum of the values of all final products from x kg of groundnut is

$$\text{Total Value} = P_{\text{eoil}} Q_{\text{eoil}} + P_{\text{roil}} Q_{\text{roil}} + P_{\text{dcake}} Q_{\text{dcake}} \quad (1)$$

Where P_{eoil} and Q_{eoil} are the prices and the quantity of edible oil produced after crushing and P_{roil} and O_{roil} are the price and quantity of price of oil extracted from oiled cake in the solvent extraction unit and P_{dcake} and Q_{dcake} are the price and the quantity of De-oiled cake produced from the solvent extraction unit.

Groundnut Crushing at the Oil Millers End:

Decortification of Groundnuts for Kernals:

X Kg of Groundnut, when crushed by oil millers for oil usage, produces 100α percent of seeds ($0 < \alpha < 1$).

$$\mathbf{s = \alpha \times x} \quad (2)$$

Where s is s kg of kernals.

Edible Oil:

$100\beta_1$ percent of total weight of seeds produce Q_{oil} kg of edible oil ($0 < \beta_1 < 1$).

That is,

$$\mathbf{Q_{oil} = \beta_1 \times s} \quad (3)$$

Oiled Cake:

The remaining portion of seeds minus loss of 100 percent produce c kg of cake ($0 < \eta < 1$).

$$\mathbf{c = (1 - \beta_1 - \eta) \times s} \quad (4)$$

Define β_2 such that $\beta_2 \equiv (1 - \beta_1 - \eta)$. Then Equation (4) becomes,

$$\mathbf{c = \beta_2 \times s} \quad (5)$$

Solvent Extraction Unit:

Refined Oil:

Refined Oil is produced through pressing of the Oiled Cake and further refining it.

100δ percent of total weight of cake produce Q_{roil} kg of refined oil ($0 < \delta < 1$).

$$\mathbf{Q_{roil} = \delta \times c} \quad (6)$$

De-Oiled Cake:

Finally the remaining portion of cake produces Q_{dcake} Kg of de-oil cake

$$Q_{\text{dcake}} = (1 - \delta) \times c \quad (7)$$

Reduced Form Equation:

To summarize,

$$Q_{\text{eoil}} = \beta_1 s \quad (8)$$

$$Q_{\text{roil}} = \delta c = \delta \beta_2 s \quad (9)$$

$$Q_{\text{dcake}} = (1 - \delta) c = (1 - \delta) \beta_2 s \quad (10)$$

Define P_{diff} as the difference between P_{roil} and P_{dcake} . That is,

$$P_{\text{diff}} = P_{\text{roil}} - P_{\text{dcake}} \quad (11)$$

Using equation (2) and (8)-(11), equation (1) can be simplified as,

$$\text{Total Value} = P_{\text{eoil}} + P_{\text{roil}} Q_{\text{roil}} + P_{\text{dcake}} Q_{\text{dcake}} \quad (12)$$

$$= s [\beta_1 P_{\text{eoil}} + \beta_2 \{\delta P_{\text{roil}} + (1 - \delta) P_{\text{dcake}}\}] \quad (13)$$

$$= s \alpha [\beta_1 P_{\text{eoil}} + \beta_2 \{\delta P_{\text{diff}} + P_{\text{dcake}}\}] \quad (14)$$

Parameters used in this model:

Parameter	Unit	Explanation
x	Kg	Amount of Groundnut
α	Ratio	Shelling Ratio, Weight of seeds in the pod
β_1	Ratio	Weight of edible groundnut oil produced to given weight of seeds
η	Ratio	Waste produced during crushing
β_2	Ratio	$1-\beta_1-\eta$
δ	Ratio	Weight of refined oil produced to given weight of cake
P_{eoil}	Rs	Price of Edible Groundnut Oil
P_{roil}	Rs	Price of Refined Groundnut Oil
P_{ocake}	Rs	Price of Oil cake
P_{dcake}	Rs	Price of De-oiled cake
P_{diff}	Rs	$P_{roil}-P_{dcake}$

The values for each of above given parameters varies depending on the market, seed quality, demand and supply relations and access to information. However the following values have set for the parameters based on the undertaken market survey,

$$x= 100Kg$$

$$\alpha=0.7575$$

$$\beta_1= 0.375$$

$$\eta= 0.01$$

$$\beta_2=0.615$$

$$\delta= 0.07$$

$$P_{eoil}= Rs.57$$

$$P_{roil}= Rs.55$$

$$P_{dcake}=Rs. 21.5 \quad P_{ocake}= Rs.20$$

$$P_{diff}= Rs.33.5$$

Total Value at the Oil Millers End:

$$\begin{aligned}\text{Total Value} &= x\alpha[\beta_1P_{\text{oil}} + \beta_2P_{\text{cake}}] \\ &= 100*0.7575* [0.375*57+ 0.615*20] \\ &= \text{Rs.2550}\end{aligned}$$

Hence the price of 100 Kg groundnut at the above mentioned oil and cake market prices in groundnut should always be less than Rs.2550.

Total Value at Solvent Extraction End:

$$\begin{aligned}\text{Total Value} &= 100*0.7575*[0.615*[0.07*33.5+21.5]] \\ &= \text{Rs.1110}\end{aligned}$$

Hence the price of cake(46.6kg) being bought from millers should always be less than Rs.1110.

Total Value of derivative products produced from 100 kg groundnut =

$$\begin{aligned}& x \alpha [\beta_1P_{\text{oil}}+ \beta_2 \{ \delta P_{\text{diff}} + P_{\text{cake}} \}] \\ &= 100*0.7575* [0.375*57+0.615*\{0.07*24+21\}] \\ &= \text{Rs.2816}\end{aligned}$$

Oil Seed Market Channel and Costs:

Actor	Channel 1	Channel 2	Channel 3	Units
Farmer	2200	2161	2165	Rs/Qtl
Commission Agent	2200	2200		
Trader	2450			Rs/Qtl
Broker(Between Trader and Miller)	2470		2220	Rs/Qtl
Oil Miller				
Edible Oil	1603	1603	1603	Rs/28.8Ltr
Cake	937	937	937	Rs/46.6Kg
Total Revenue of Millers	2540	2540	2540	
Refineries		2219		Rs/28.8Ltr
Primary Wholesaler	1655	2235	1655	Rs/28.8Ltr
Secondary Wholesalers	1691	2265	1691	Rs/28.8Ltr
Retailers	1747	2290		Rs/28.8Ltr
Broker(solvent)	937			Rs/46.6Kg
Solvent Extractor				
De-oiled Cake	885	885	885	Rs/43.3Kg
7% Refinable Oil	155	155	155	Rs/3 Ltr
Total Revenue Solvent extractors	1040			
Final price of cake and oil together	2787	3330	2731	
% of farmers Share in the Final Cost	78.93793	64.8948949	79.274991	

Marketing Margins and Net Margins in Groundnut Oil :

	Channel 1			Channel 2			Channel 3			
	Gross Margin	Total Cost	Net Margin	Gross Margin	Total Cost	Net Margin	Gross Margin	Total Cost	Net Margin	
Actor										
Commission Agent	39(6.22)	10(2.7)	29(9.9)	39(3.2)	10(1.22)	29(7.6)				
Trader	250(39.8)	110(30.2)	90(30.9)							
Broker		10(2.7)	10(3.4)					30(9.4)	25(7.99)	
Oil Miller	90(14.3)	60(16.4)	30(10.3)	340(28.6)	204.2(24.9)	135.8(35.8)	320(56.3)	204.2(64.1)	115.8(37.02)	
Oil Cake										
Refineries				616(51.8)	520(63.6)	96(25.3)				
Primary Wholesaler	52.9(8.4)	21.9(6.01)	31(10.6)	35(2.9)	21(2.5)	14(3.6)	52.9(9.3)	21.9(6.8)	31(9.9)	
Secondary Wholesalers	36(5.7)	12(3.2)	24(8.2)	30(2.5)	12(1.4)	18(4.7)	36(6.3)	12(3.77)	24(7.6)	
Retailers	56(8.9)	10(2.7)	46(15.8)	25(2.1)	10(1.22)	15(3.9)	56(9.8)	10(3.14)	46(14.7)	
Broker(solvent)		2(0.54)	6(2)		2(0.2)	6(1.5)		2(0.6)	6(1.9)	
Solvent Extractors	103(16.4)	38(10.4)	65(22.3)	103(8.6)	38(4.65)	65(17.1)	103(18.13)	38(11.9)	65(20.7)	
De-Oil Cake										
Refinable Oil										
Non-refinable Oil										
Total Costs	626.9	273.9	291	1188	817.2	378.8	567.9	318.1	312.8	

